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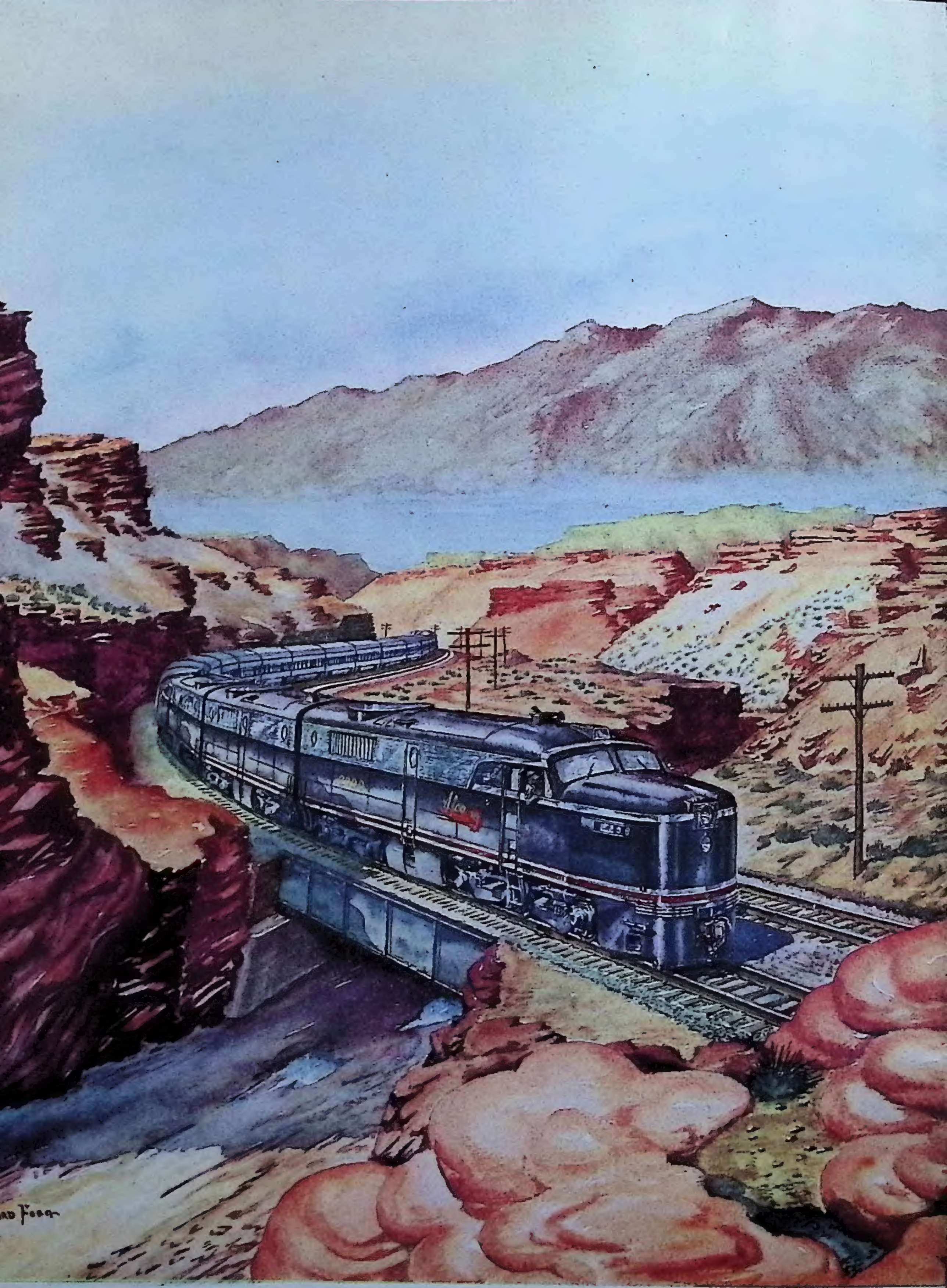
Trains

February, 1947

The Illustrated Magazine of American Railroading



Apache Canyon **This water-color painting, by Howard Fogg for the American Locomotive Company collection, shows the newest Alco Diesel in Apache Canyon on the Santa Fe.**

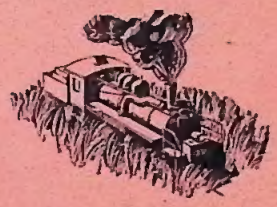
Trains

A. C. Kalmbach - Editor and Publisher
Linn H. Westcott - Editorial Director

Editors
Frank P. Donovan Jr. C. P. Fox
Willard V. Anderson

Joe O'Hearn - Assistant to the Publisher
Ward Zimmer - Advertising Manager
Glenn Parker - Production Manager

H. H. Kirtland - Comptroller
Virginia Kazda - Business Manager



Volume 7, Number 4

February 1947

"While all forms of transportation combine to keep the lifeblood flowing to the economic heart of this nation, the undisputed fact is that none has contributed so much to the spread of civilization, the creation and diffusion of wealth, the expansion of industries, or the improvement in the standard of living as has the railroad. Nor does any other industry so fully touch the everyday life of every citizen."—J. R. Coulter, Chief Traffic Officer, Frisco Lines.

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LIMA LOCOMOTIVE WORKS INCORPORATED

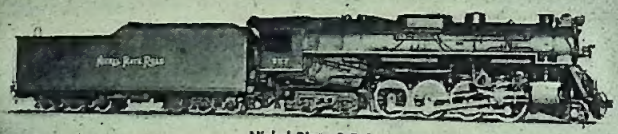
A FAMILIAR SYMBOL *at home.*

Chesapeake & Ohio 2-6-6-6

Virginian 2-6-6-6

Chesapeake & Ohio 2-8-4

Southern Pacific 4-8-4



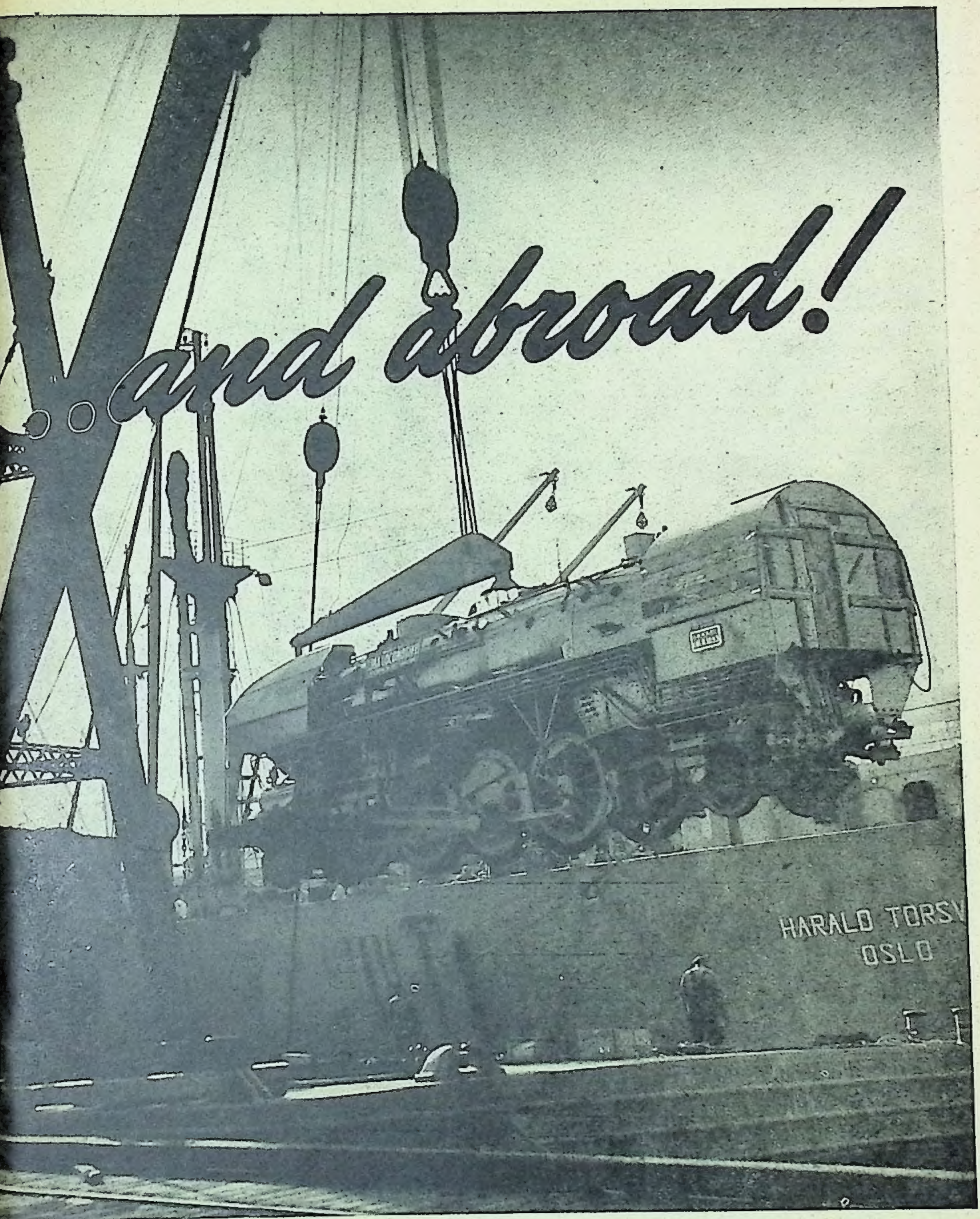
Nickel Plate 2-8-4

The famous "Lima Diamond", a symbol of skilled workmanship and efficiency in operation, has become a familiar sight on foreign as well as domestic railroads.

On the right, one of the 280 Lima-built steam locomotives recently completed for the French Railways is being loaded aboard the "Harold Torsvik" of Oslo, in Baltimore, Md. These 2-8-2's were specially designed to meet the requirements of France whose transportation system was decimated by the war.

On the left is illustrated a representative group of Lima-built power for domestic use. These locomotives, from the 2-6-6-6 super-freight for the Chesapeake & Ohio to the 2-8-4 for the Nickel Plate, are effectively demonstrating that Lima Steam Power is capable of hauling heavy loads at the sustained speeds that modern requirements demand.

LIMA LOCOMOTIVE WORKS



INCORPORATED, LIMA, OHIO

C&O Puts Coal on Roller Bearings

Freight is going onto roller bearings in a big way for the first time. The Chesapeake & Ohio has ordered 1000 coal-carrying hopper cars equipped with Timken roller bearings on all journals. With these cars in solid trainloads the road expects an increase in the locomotive tonnage rating of nearly one fourth. Biggest saving will be in starting tractive effort required.

Ever since the Milwaukee Road put the *Pioneer Limited* completely on roller bearings back in 1927 passenger equipment has been going more and more on antifriction bearings, until now practically all new cars come this way as a matter of course. The Diesel locomotive was born with roller bearings in its toes, and steam locomotives have increasingly been equipped with antifriction driving boxes, trailer and pilot axles, and motion work.

But Walter Sanders, manager of the railway division of Timken Roller Bearing, decided some years ago that the country's 2,093,343 freight cars offered an even better prospect than the 46,968 passenger cars and 46,305 locomotives. Selling this idea to the railroads was and is no easy task, because:

1. The average freight car travels only 52 miles in a day. Most of its time is spent in loading and unloading and in yards. To most railroad men the freight car seemed as much a storage shed as a vehicle, and there was no general enthusiasm for increasing the cost of cars in exchange for a saving in friction on the small average mileage.

2. Even more important, the average freight car spends very little time on the road which owns it. For months it may wander far from home, and all the owner gets is a flat reimbursement of $1.25 per day. Railroads did not relish putting extra money into cars which would save motive power for somebody else. It looked as though only a higher per diem allowance for roller-bearing cars might encourage their use.

Chesapeake & Ohio, however, has neither objection. Its coal cars keep moving on a busy cycle from coal breaker to bulk unloader at Great Lakes or seaboard and back again, and many of them never leave the home road. Here is the first real chance the roller bearing has had to prove its advantages in solid heavy freight trains. The results may well form the basis for changes in interchange regulations which will encourage more unrestricted use of antifriction bearings in freight service.

Pennsylvania Finishes its First Postwar Coaches

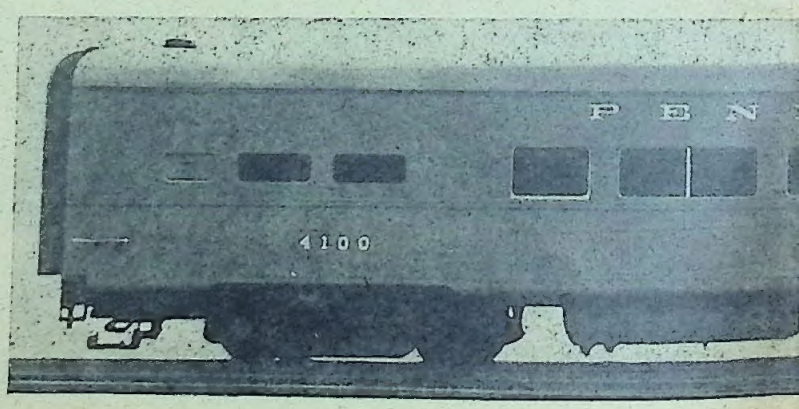
The most unusual new coaches to appear since the war are those which the Pennsylvania Railroad is now putting into service on the *Trail Blazer* between Chicago and New York and the *Jeffersonian* between St. Louis and New York. The coaches are part of an order for 93 coach, lounge, dining, special feature, and observation cars styled by Raymond Loewy and being built at Altoona Works for the two trains. The coaches are coming through first and then the other cars will be put in service until by late this year the two trains, which need five sets of equipment, will be completely equipped. The 93-car order includes enough spares so trains need not be taken out of service for periodic servicing.

On order with other builders, whose production, like that of the railroad's Altoona Works, has been interfered with by severe material shortages, are an additional 256 sleeping, coach, dining, lounge, and observation cars for service in other trains of the Pennsylvania's East-West fleet and on through trains operated in joint service with other roads, particularly the New York-Florida service.

Although five feet longer than normal, a full 85 feet, the new overnight coaches seat only 44 people. The seats are widely spaced and the lounge and entryway space is generous. The two seat wide picture windows are divided by a narrow sash strip so that either passenger may adjust the window shade for his half of the window independently. At each end of the car four windows are fitted with emergency opening gear so that the car need not remain sealed in case of air conditioning failure.

The trucks are a variation of the standard four-wheel Commonwealth type with additional coil and elliptical springs so designed as to eliminate the need for shock absorbers, which are a difficult thing to maintain. Because of the long lounge rooms at each end all the regular seats are located well inside the trucks. The regular car lighting is fluorescent, with emergency incandescent lighting at floor level.

Air conditioning with a full two-way cycle is built in by using the under side of the baggage racks for a perforated air return. Temperature control is more accurately held both winter and summer by all-year use of the air circulating system. The car body is all-welded high-tensile steel, except for the joint between roof and side which is riveted to allow access for maintenance. Additional reinforcement has been added at corners and along the side to make this a more



substantial and stronger car than the older heavyweight construction. The roof is designed to act as a structural member rather than just as a "lid for the box" as it did in older designs.

Even the little things haven't been overlooked. For instance, the side frame of the reclining and revolving seat is so designed that a passenger can step into an opening at seat level in order to reach the baggage rack. The wide seat spacing allows seats to revolve independently of each other. The doors are automatic, with pneumatic operation at the touch of the latch.

But most striking of all is the appearance of the cars. Pennsylvania Railroad passenger cars have been so highly standardized ever since the road was almost entirely re-equipped with steel cars in one fell swoop early in the century that these new coaches give one a bit of a jolt. They are brand new in appearance as well as everything else. The exteriors are satin smooth and unbroken by ribs, bumps, or seams. The color is solid tuscan red, no striping or panels.

The interiors gleam with stainless steel and light enamels. Color schemes, as set by the shade of the seating, vary from car to car, but in all cases the ends of the main passenger room are lined with mirrors, the entries are stainless steel, and even the diaphragms are lined with stainless. In a one-way mirror at each end the words "no smoking" can be illuminated when the car is a nonsmoker and otherwise the mirror surface is unbroken. The fluorescent lighting is four times as bright as in older cars, and the illumination is shadowless from floor to ceiling.

As these and other new cars now on order are placed in service, prewar streamlined cars will be moved down to other trains so that practically all through train services of the Pennsylvania Railroad will have modern equipment.

The Trib Is Clairvoyant

The Chicago *Tribune* is either keeping its head in the sand, ostrich-like, or playing a skin game with the railroads running out of Chicago. Last month it featured an article extremely critical of railroad service between Chicago and New Orleans, giving top billing to the lack of fast coach service comparable to the all-Pullman *Panama Limited* of the Illinois Central. But Chicago *Tribune* surely knew that IC has under construction a new coach streamliner, the *City of New Orleans*, which will go into fast daytime service between Chicago and New Orleans.

Similarly a month earlier the *Trib* had flayed the service from Chicago to southeastern Michigan, primarily Grand Rapids and Muskegon, although Pere Marquette was at that time arranging for streamliner service and the fact was well-known. Does the "world's greatest newspaper" really know so little of what goes on in railroad circles, or does it deliberately campaign for things it knows are going to happen, thus increasing its home town prestige?

Out Again, In Again, Rio Grande Southern

The Rio Grande Southern, 172-mile narrow gauge southwestern Colorado railroad whose abandonment has been rumored every few months for the past several years, has received a two-year mail contract renewal which will keep it out of the abandonment lists at least until January 1, 1949. The mines in the territory are very anxious to keep the railroad and the Rico-Argentine mine was understood to be instrumental in securing the mail contract renewal. A syndicate of mines agreed to a rate increase on the RGS which allowed the road to grant wage increases, and it is rumored the same mines are interested in taking over the trackage in case the railroad company itself gives up the ghost.

Frisco's New Shops

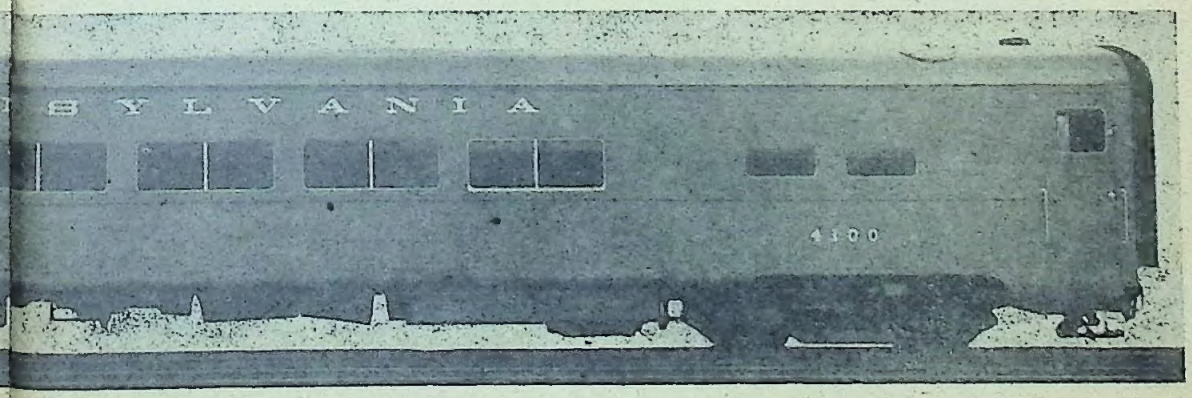
The Frisco's program for complete replacement of yards and shops in Springfield, Mo., is motivated by the fact that present facilities are well within the built-up area of the city and any expansion is choked off by bottlenecks at each end of the area. The present North Shops and North Yards would both be eliminated and replaced by new yard and mechanical facilities in open country west of the city near the present relatively new West Shops.

Cost of the entire project is about $5 million, the largest single construction job ever undertaken by the Frisco. The yard will have 40.4 miles of track with 141 switches and a capacity of 2960 cars. Another 13.6 miles of track with 54 switches will be used in the new mechanical facilities. The program will give the Springfield yards the largest capacity on the Frisco system.

Busy Narrow Gauge

The Denver & Rio Grande Western's tri-weekly narrow gauge mixed train from Durango to Silverton was discovered by so many

Pennsylvania Railroad is putting into service new, unusual luxury coaches.



railfans last summer that the one coach carried in addition to the caboose was far from adequate and most of the time the little train up the canyon of the Rio de Las Animas carried three coaches to accommodate the crowd. The scenery is perhaps the most spectacular on any mountain railroad and the trip is popular with camera fans as well as railroad connoisseurs. The conductor on the run says last year he had passengers from all 48 states and many foreign countries. Present plans call for continued year-round operation of the train, and sufficient spare equipment is kept on hand at Durango to protect as much passenger traffic as appears.

B&O Cincinnati-Washington Streamliner Now in Service

The fastest schedule ever posted between Washington-Baltimore and Cincinnati is that of the new *Cincinnatian*, daytime coach streamliner inaugurated in January by the Baltimore & Ohio. Between Washington and the Queen City the timing is 11½ hours, an average of 47.3 miles per hour across some of the toughest terrain in this country, including the double summits of the Alleghenies between Cumberland and Grafton. The entire scenic trip is made by daylight in both directions with leaving times of 8:45 a. m. from Cincinnati and 8 and 9 a. m. from Baltimore and Washington.

Motive power for the five-car twin units is four Pacific type steam locomotives, streamlined and otherwise rebuilt from President class Pacifics. These locomotives are powerful enough to haul the train over the Allegheny grades without helpers. The new 12-wheel tenders are extra large to eliminate service stops. Maximum speed is 100 miles per hour. A special steam whistle of the "long bowl" type has been fitted to all four locomotives so that people who live along the route will have no trouble identifying the *Cincinnatian*.

The cars, which were built on old underframes in B&O's Mt. Clare shops because of the difficulty in getting delivery from outside builders, are on six-wheel rubber-insulated roller-bearing trucks, following B&O's theory exemplified in the *Capitol* and the *National* that heavier equipment produces a smoother ride. Exteriors are welded smooth and diaphragms are flush between cars. The dynamic design of the locomotive led one railroad man to remark, "It looks as if it's going somewhere even when it's standing still." Paint scheme is royal blue and gray trimmed with bright aluminum and stainless steel.

Accommodations are all coach class, but unusual lounge space is provided. Only 176 seats will be sold on the train but extra feature cars provide another 68 lounge seats which passengers may roam about to at will. The first car is a combination baggage-buffet-lounge, the next three are coaches, and the last is a distinctive diner-observation lounge so arranged that passengers at the dining tables can see in all directions.

To enable her to provide better care for babies and children and for other travelers who may need assistance, the stewardess-nurse has a private room in the center of the train. Its special facilities include a sofa-bed, electrical heating equipment for baby bottles and food, and a private washroom. Thus, when small children become fretful, there is no necessity for them to disturb other passengers. The stewardess can take care of them in these soundproof quarters. From here, also, the stewardess has telephone communication with the other members of the train crew.

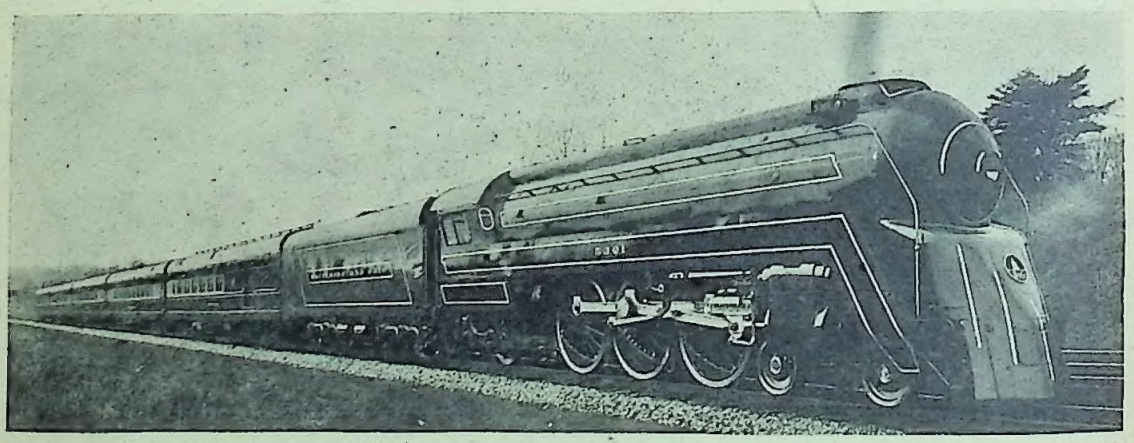
Steam Locomotives for New C&O Streamliners

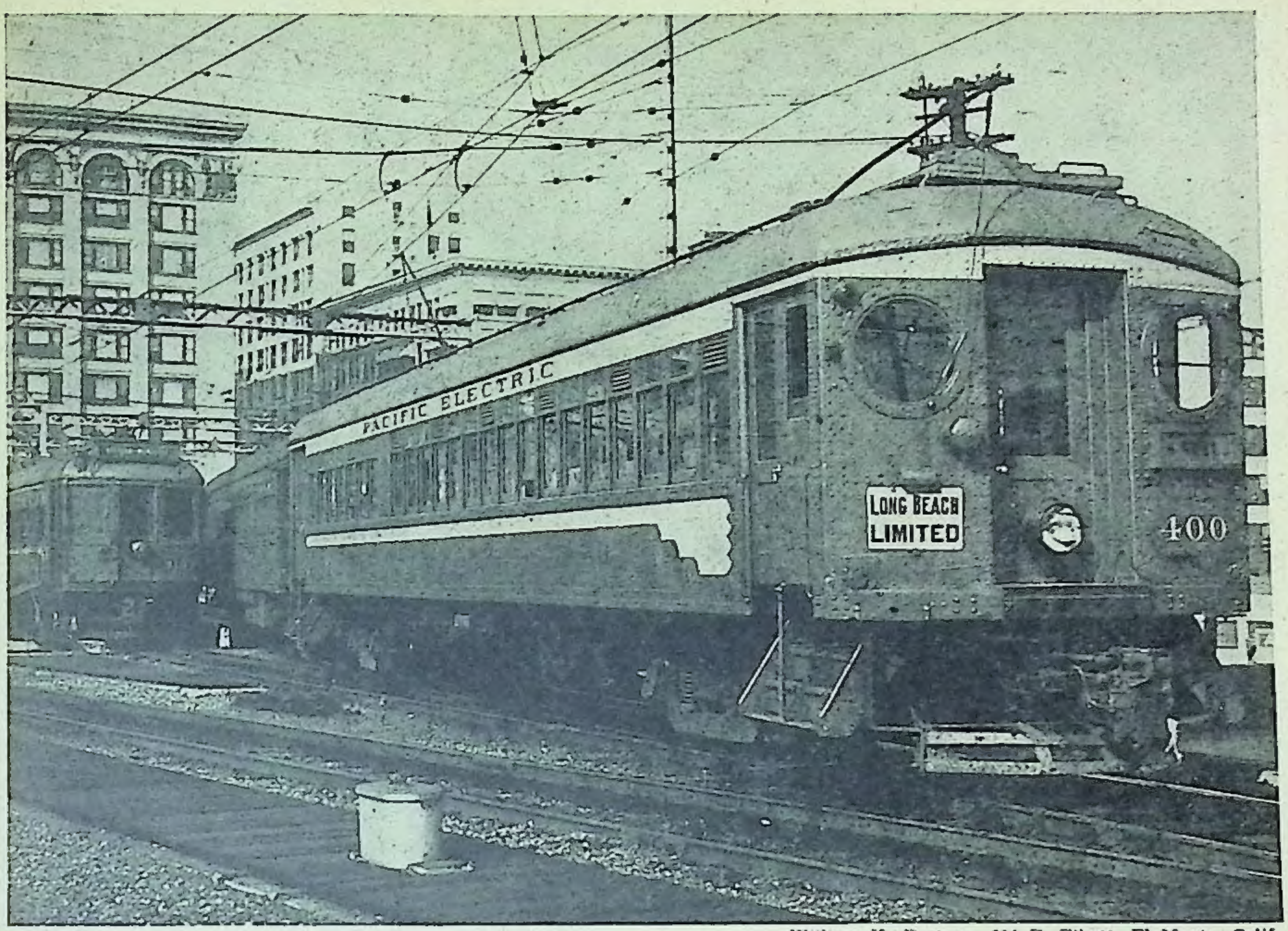
The Diesel locomotive men were chortling, "Now that the Pennsylvania is buying Diesels can the C&O really be so hard to sell?" And then the C&O let them down with a sharp thump. To power its new streamlined passenger service [January TRAINS] it ordered 10 steam locomotives, five of the 4-8-4 wheel arrangement and five 4-6-4's. Thus it was proved that where the coal versus oil price relationship is right the reciprocating steam locomotive is still a very competent piece of motive power, as mentioned in this column for December.

The new 4-6-4 engines, which will work on the west end of the road between Hinton, W. Va., and Cincinnati, will very likely be fitted with the Franklin system of poppet valves. The 4-8-4's will handle the mountain run across the Allegheny Summit east of Hinton and on to Richmond.

All 10 of the locomotives will be streamlined and equipped with roller bearings, high-speed boosters and lightweight main and side rods and crossheads. Like the 284

Baltimore & Ohio's new steam powered daylight streamliner, the Cincinnatian.





William K. Barham, 114 E. Elliott, El Monte, Calif.

Pacific Electric, the world's largest interurban line, is certain the electric railway will continue to play a large part in urban transportation in the Los Angeles area and is remodeling 71 of its big cars at a cost of a half-million dollars. First car out of the shops was No. 300, formerly a Northwestern Pacific suburban car. Photo was taken in the Main Street elevated terminal in downtown Los Angeles where 492 trains arrive and depart for points south and east of the city.

new passenger cars, the engines will have electropneumatic braking. Cabs will be extra large to assure greater comfort for engine crews. Boiler shells will be nickel steel. Firebox side sheets will be molybdenum steel, and all staybolts in the fire line on the boiler will be seal welded. Internal firebox seams will also be welded.

Engine beds will be of cast steel with integral cylinders and air reservoirs. The heavy cast steel pilots will have retractable type couplers. The high-speed boosters on both classes of locomotives will be designed for fast acceleration from station stops, functioning up to 35 miles an hour. The 4-6-4's will have tractive power of 64,700 pounds; the 4-8-4's 80,200 pounds.

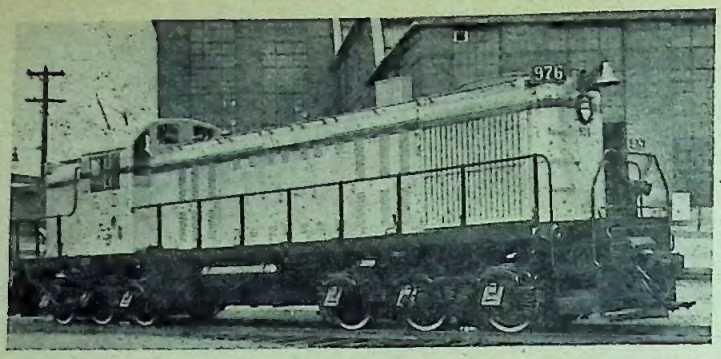
Aside from these 10 engines, the Chesapeake & Ohio has on order 40 coal-burning type 2-8-4 freight locomotives, 30 of which are being built by American Locomotive Company at Schenectady, N. Y., and 10 by Lima Locomotive Works at Lima, O. Three 6000 horsepower locomotives of a revolutionary steam-turbine-electric design are being built at the Baldwin Locomotive Works. They are to be used to power the two new Chessie streamliners which are to make their debut this year between Washington and Cincinnati.

UP to Dieselize From Salt Lake to Los Angeles

Complete Dieselization of the one-time Los Angeles & Salt Lake, now the Union Pacific main line south of Salt Lake City, is expected by the fall of this year, according to an announcement made concurrently with the placing of a $22 million Diesel order, largest in history, for 64 passenger, freight, and switching locomotives. The long, largely single-track line across Utah, Nevada, and California deserts to Los Angeles is in country where locomotive boiler water is an expensive item, a situation much similar to that of the Santa Fe main line between Williams, Ariz., and Barstow, Calif., which is already Dieselized.

The new equipment order consists of seven passenger locomotives, 28 freight locomotives, and 29 switchers. With delivery of this new equipment in 1947 the Union Pacific will have 66 single Diesel units for passenger use and 112 single Diesel units for freight use, and a total of 141 Diesel switch engines.

"When all of this equipment is received the Union Pacific will have, including its present 45 single Diesel units now in use on passenger trains and its present 112 Diesel switch engines, a total of 421,500 horsepower in Diesel-electric locomotives," according to G. F. Ashby, president. "There will be 112,500 horsepower in passenger service, 168,000 horsepower in freight service, and 141,000 horse-



First of a new type 1500 horsepower road-switching locomotive, designed for top speed of 65 miles per hour, was recently delivered to Milwaukee Road by Alco.

power for switching activities. In addition, we are now operating 600 oil-burning steam locomotives of all classes."

Locomotive Notes

Maximum recorded speed of one of the Norfolk & Western Class J streamlined 4-8-4 locomotives, made on a test with a 15-car, 1025-ton train on level tangent track, was 110 miles an hour. In this case the driving wheel tires had been worn so the diameter was only 68½ inches instead of the specified 70 inches. . . . The first of the 12 new Western Maryland 4-8-4's left the Baldwin erecting shop last month. . . . In addition to its work on the coal-burning gas-turbine locomotive, Bituminous Coal Research has started new research projects reaffirming its faith in the conventional reciprocating steam engine. The steam locomotive subcommittee is studying air supply for locomotives, overfire air jets for smoke elimination, affect of fuel on locomotive performance, front end cinder collection and disposal, and the handling of locomotive coal to minimize breakage.

Good news for steam locomotive enthusiasts was the news that B&O chose Pacific type reciprocating steamers for its new *Cincinnati* streamliner. This proves that the steam locomotive has the inherent capabilities for handling high-speed jobs and that it is all a matter of economics as applied to each particular assignment, as discussed in TRAINS for December. . . . Chesapeake Western, a 54-mile road centering about Harrisonburg, Va., has retired all steam power from active service following delivery of its third Baldwin Diesel. . . . Following its order for 20 main line Diesel freight locomotives, Southern Pacific has also ordered 23 Diesel switchers, which will raise its roster of this type switcher to 153.

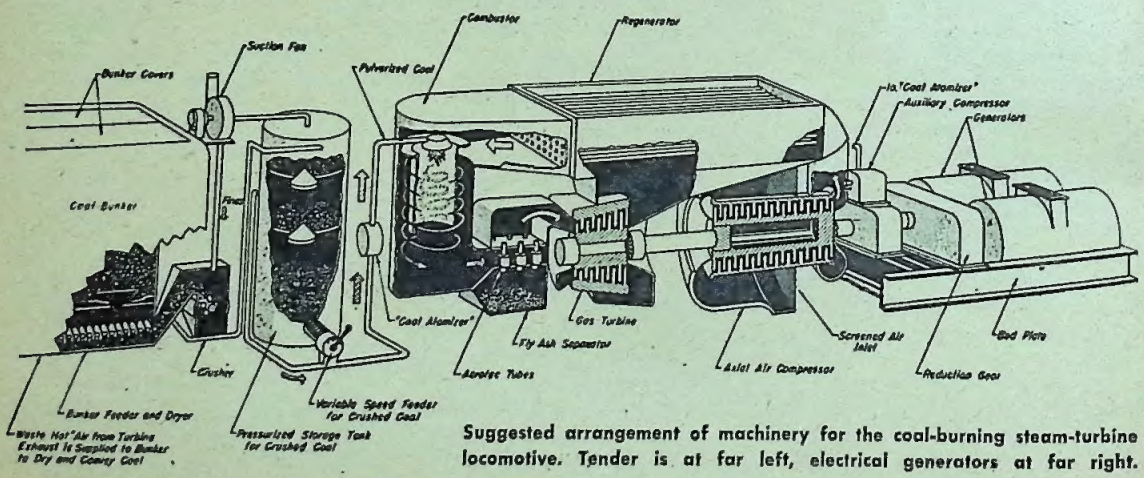
Canadian Pacific's mechanical department is elated over test results of the 5200 class Mikado, 15 of which are being rebuilt from 35-year-old Consolidations. The performance so far has been far better than the 5100-class Mikados, which the 5200's were rebuilt to resemble. The converted engines have longer tenders, stokers, and new boilers. At the start of World War II the 3700 class Consolidations were destined for switching service, but they were kept on the road to move war traffic. Now the conversion was expedient when soaring costs of labor and materials made new locomotives out of the question in the quantity required.

Progress Report on Gas-Turbine Locomotives

The first two revolutionary new coal-fired gas-turbine locomotives will be on the rails for test within 20 months, according to the Bituminous Coal Research Locomotive Development Committee. The immediate objective of the committee, of which B&O's Roy B. White is chairman, is to build two high-speed double-ended locomotives of 3000 rail horsepower each, with 1000-mile, nonstop fuel capacities. The power plants of the two engines will be different in design, but both will use pulverized coal.

To power these locomotives, two gas-turbo-generator units have been ordered, one from the Allis-Chalmers Manufacturing Company, Milwaukee, Wis., and the other from the Elliott Company, Jeannette, Pa. Deliveries are expected in 16 months. The American Locomotive Company, the Baldwin Locomotive Works, and the Lima Locomotive Works, Inc., are developing designs independently for the locomotive chassis.

The gas-turbine locomotives are



Suggested arrangement of machinery for the coal-burning steam-turbine locomotive. Tender is at far left, electrical generators at far right.

In the Heart of Tennessee

A Louisville & Nashville freight train nearing Union Station in Nashville. North of the city at Amqui one line of the railroad goes to connections at Louisville and Cincinnati and the other route heads to the west for Evansville and St. Louis. Through Nashville flows the combined traffic of these important gateways. Photo by A. C. Kalmbach.

expected to burn less than a pound of coal per rail horsepower hour, use very little lubricating oil, need no water except for a train-heating boiler, require less maintenance than steam or Diesel locomotives, and have an availability equal to that of the Diesels.

The operation of locomotives envisions taking prepared coal up to about four inches in size from bunkers carried on the locomotives, then conveying, drying, and crushing it to a 16-mesh top size. The coal will next be delivered to a lock hopper or pumped directly to the coal atomizer where it is reduced in size to 90 per cent minus 325-mesh. The pulverized coal will then be air-delivered to the combustors under pressure where it will be burned at 70 pounds per square inch with air heated in regenerators to 600 degrees Fahrenheit.

The gases will be freed of blade-wearing fly ash particles in a battery of aerotec tubes, which are small, efficient cyclone separators. The combustion gases then enter the turbine at 1300 degrees Fahrenheit at 68 pounds per square inch. The turbine shaft drives the air compressor and the generator. Heat from turbine exhaust gases is partially recovered by transfer to the air used in combustion.

The power produced in the generator will be delivered to direct-current traction motors on the axles through a conventional control system. A mechanical transmission drive is also being considered for later development.

In the Railroad Headlight

A Milwaukee Road conductor who handles one of the busiest runs in the country is our railroad man of the month. Ernie E. Haddock of Milwaukee was nominated for his unusual courtesy in dealing with passengers, and any man who can keep his courtesy while collecting more than seven fares a minute is entitled to recognition.

Haddock runs from Milwaukee to Chicago every morning on second 16, the coach section of the *Olympian*, and returns the same afternoon on No. 101, the *Afternoon Hiawatha*. The *Hi* is one of the most heavily loaded trains in the country, equaled or perhaps exceeded only by the Southern Pacific *Daylight* and the New York

Photo by George Lenington.
He collects tickets seven a minute.

Central's *Empire State Express*. Heaviest load Haddock ever handled was Saturday, December 21, 1946, when he had 950 people from Chicago to Milwaukee. He himself took in $108 in cash fares on that run, almost $2 a minute, and his helper took in $70. At present the train is averaging about 300 to 400 daily, but the yearly average is between 500 and 900.

His procedure is to begin working the train from the head end as soon as it leaves Chicago. His helper goes to the rear with the Pullman conductor and the three work toward the center until they meet. Using this setup, Haddock himself has handled as many as 500 people in the 68 minutes he has to work the train, an average of more than seven persons a minute. The one potential trouble spot is the diner. People without tickets or parlor car seats often go there immediately on departure from Chicago, thereby causing change-making and confusion.

It was just after the turn of the century, 1901, when Haddock started working for the Milwaukee Road in the West Milwaukee shops. After three years he decided he didn't like shop work and left for a trip around the world. In 1905 he returned to service as a freight brakeman, was promoted to freight conductor in 1909, to passenger service in 1923. For 15 years he worked suburban runs between Chicago and Fox Lake, until he began the present run in 1938.

"Believe it or not," he says, "I like to travel." Besides his 'round-the-world trip he has traveled in Canada, Alaska, Mexico, and Nicaragua and hopes next to visit Norway. Most of the year he works every day and thus is able to take off two months at a time.

[Do you know some railroad man who should be entitled to special recognition? He may be in train service, behind a ticket window, or anywhere else on the road. You need not know him by name. Just send us the reasons for recognition and enough about the man, train number, date, or other data from which he can be identified.]

Missing: A Short Line

That little-used piece of track we see winding away from the main stem may often be an exotic short line instead of a mere branch or siding. It merely needs identification. Recently on the way through Indianapolis I passed some sidings I had gone by dozens of times before, without in the least suspecting a case of double identity. To me they had been just an appendage of the Big Four.

But this trip a little 44-ton Diesel on the tracks added a proper label, and I was astonished to learn that all these years I had been missing an introduction to the White River Railroad, a one locomotive, 2.33-mile road so small that it is not even listed in the current Moody's. Now I really have something to look into the next time I stop in the Indiana capital.

Why Be Comfortable?

The steam locomotive is an uncomfortable thing to ride. It is not a vehicle like the cars it pulls, but a live, hot, roaring, bucking power plant with the crew riding astride it. So when I climbed into the cab of a B&O Pacific at Grafton, W. Va., for the tough ride east over Newburg, Cheat River, Cranberry, and Seventeen-Mile grades, it was perhaps not unnatural that Engineer Boyd Bragg looked twice at me and my letter of authorization. He reread the last paragraph out loud, "Upon presentation of proper transportation." "Why hell," he said, "with that you could even ride back in the coaches and be comfortable!"

A. C. Kalmbach.

J. A. McLellan, 47-B Wavecrest Ave., Winfield Park, N. J.

PAOLI LOCAL

The real "Main Liners," as Pop tells Kitty Foyle in the 1939 best-selling novel by Christopher Morley, were the track gangs — the laborers who laid the Main Line of the Pennsylvania Railroad between Philadelphia and the West.

In terms of trackage, the Main Line goes on out to Pittsburgh and beyond. But in the social sense, the Main Line begins at Overbrook and ends at Paoli. And by that measurement, it is only 20 miles long — a 20-mile stretch of residential communities tied to Philadelphia by the Paoli Local.

The Paoli Local is a commuters' train. But the Paoli Local is more than that. It is a train with a personality, just as Fontaine Fox's comic Toonerville Trolley is a street car with a personality. And the Paoli Local is the root of the Main Line, the source of its growth and the anchor of its existence. For it was the Paoli Local, or some nameless ancestor in the heritage of railroad

The Paoli Local begins its run at the Pennsylvania's Philadelphia suburban station ← across Filbert Street from the "Chinese Wall" of the Broad Street Station at 16th Street, and ends it just west of the station at Paoli, 20 miles out →. After leaving the main suburban station, trains traverse a maze of tracks ↗ (1) at the 30th Street station over the Schuylkill River bridge. This is the approximate site of the old West Philadelphia station. Smokestack is at steam plant which supplies PRR and other properties with heat. Commuters ↗ (2), "clockers," and trains originating and terminating at Broad Street Station use the upper level tracks at 30th Street; New York-Washington trains use the lower level. Socially speaking, the Main Line starts at City Line Avenue (marked by bridge) in Overbrook ↗ (3) and ends at Paoli. Any other usage of the term is nonexistent.

BY WILLIAM A. BELL

Root of the Main Line, anchor of its existence, the Paoli Local is a train with a personality

schedules, that really built up the Main Line.

Perhaps only those who ride on this train regularly can understand why the Main Line stands for a way of life as well as a place to live; why it is unique among American suburbs in that the mere mention of it conjures up a picture of domestic comfort and social position; of impeccable ancestral lineage and English country life before blitzkrieg; of horsey people with flawless manners, private tennis courts and charter memberships in the Republican Party; of tweed jackets worn with careless but superbly tailored flannels; of gowns purchased on Fifth Avenue with dollars made on Chestnut Street.

Now, as in prewar days, the Paoli Local passenger can see, at the 13 stops from Overbrook and on out to Paoli, station wagons marked with such place names as Berwyn, Strafford, Devon, and Haverford. This is the station wagon belt.

During wartime gasoline rationing, the station wagons were few; the bicycles many. But now they're back, the station wagons and the shiny, if no longer new, cars driven by chauffeurs or pretty wives in informal attire.

The railroad stations themselves carry out the theme. Many have window boxes and small garden plots. Some are homes for the ticket

Paoli photo by Charles A. Kiston, Downington, Pa.; others, J. A. McLellan.

All photos by J. A. McLellan.

Merion station ↑ is the most picturesque on the Main Line. Flower boxes adorn its windows ← (1) and a glass-covered map at left of bicycles shows residences in Merion. Bicycle rack is now used only by younger group. ↙ (2) Main Liners board the Paoli Local at exclusive Bryn Mawr. ↙ (3) The Main Line also sees through passenger and freight trains, although most freights take the Morrisville low-grade line.

agents and their families. Seen through the window of a Paoli Local, some look like gatehouses on a Main Line estate. They have a folksy air not usually associated with depots.

Once these Main Line stations, according to the report of early Main Liners, were "litt'e more than dirty frame boxes." That was in the middle years of the 19th century when the Paoli Local, or its predecessor, began its journeys west of Philadelphia with horse power. Dray animals hauled the coaches from the Philadelphia terminal across the Schuylkill River bridge. Then smoke-spouting locomotives took up the burden now smoothly handled by electricity.

It was perilous progress in those days. Perilous, at least, to the pioneers of Main Line manners. If you missed the six o'clock train out of Philadelphia in the evening, there wasn't another until midnight. What a train the midnight was, too! Fastidious Main Liners shunned it. That was the Paoli Local in the 1860's.

Currently, the last train leaving Philadelphia at night is a respectable enough conveyance, peopled principally by theater and concert-goers, night school students and workers.

The evolution of the Main Line communities is inseparable from the evolution of their rail-

road service. Philadelphians are traditionally slow to move. The suburban movement to the city's western environs was no exception. For the Philadelphians of yesteryear reasoned that if they went out there, the sun would shine in their eyes both coming and going. As a daily ordeal, this was too much. So, at first, the Main Line appealed only as a site for country estates and summer vacations.

One of the first more permanent Main Liners was Israel Morris, who at 90 lived on baronial acres at Overbrook. Old Squire Morris left a trail of descendants along the Main Line and in Philadelphia proper. One of his sons, Levi, was greatly intrigued with the "coal oil" discoveries in western Pennsylvania.

"I believe," he prophesied, "that we shall some day pour a cupful of this oil into our carriage and make it go without a horse."

Levi left this world 30 years too soon to see his nephew, Henry Morris, drive Philadelphia's first automobile down Broad Street. But when he spoke of a "cupful of oil" he accurately anticipated gasoline rationing.

Another pioneer whose name is perpetuated along the Main Line was Lewis Wistar, wealthy, blue-blooded, and unorthodox to the point of wearing red flannel shirts to dinner parties. Squire Wistar lived in Wynnewood. Near him lived a farsighted fellow, name of Owen Jones. Jones became known for his extensive real estate operations, in which he "purchased by the acre but sold by the foot."

Uppermost in Lower Merion Township, lordliest of all the lordly suburbs traversed by the Paoli Local, is Bryn Mawr, site of several schools and colleges for genteel young ladies. Baronial Bryn Mawr is a product of the Paoli Local's operator, the Pennsylvania Railroad; the creation of railroad executives who planned a pleasant suburban retreat which would be free from the tarnish of factory smoke.

To build a home in Bryn Mawr, the original requirement was that a house cost not less than $5000 — in those days a sizable investment even for Main Liners. On Montgomery Avenue, the principal residential street, the minimum building cost was set at $8000.

Bryn Mawr and some of its neighbors — Cynwyd, Wynnewood, Narberth — are part of that indefinable territory which once was known as the Welsh Barony.

In geological altitude, Bryn Mawr is four inches higher than Chestnut Hill, swankiest of Philadelphia's northern suburbs. In social altitude, Bryn Mawr considers itself at least a foot higher than Chestnut Hill — and every place else, too, from Back Bay Boston to Sewickley.

A few miles west of Bryn Mawr is Wayne, largest community in Radnor Township. Wayne was founded in the 1870's by George W. Childs and A. J. Drexel. Childs was editor of the now defunct *Public Ledger*. Asked why he built so far up the railroad, 17 miles from Philadelphia, Childs said it was to give new settlers more time to read the *Ledger* on the train.

At that time, the Main Line commuter had plenty to read about. The Jay Cooke financial failure of 1873 precipitated widespread railroad strikes four years later. Commuting became hazardous. At one point, Federal troops broke through a mob at the West Philadelphia station to make the Main Line safe for commuters and democracy safe for the Pennsylvania Railroad.

As the Main Line settlements have matured from resorts into suburbs, the Paoli Local has matured from an impersonal train into a friendly servant of home builders and home lovers. In fact, the Paoli Local seems to personify an old family retainer with good morals and good manners. It is a train whose crews will perform such personal favors as mailing a letter, putting school children off at the right stops, or dropping off car keys or forgotten packages at a requested station. It is, furthermore, an old Philadelphia institution, a train as characteristic of that overgrown small town as the *Evening Bulletin*, the Pennsylvania Company for Insurance on Lives and the Granting of Annuities, Connie Mack, the Liberty Bell, and the statue of William Penn atop City Hall.

The Paoli Local "Rates"

Comparatively few suburban train runs are listed in detail in the *Official Guide*, but among them is that of the Paoli Local. Eastbound service (Paoli to Philadelphia) begins at 6:01 a.m. and continues with 41 daily and daily-except-Sunday trains until 11:55 p.m. Westbound, service begins at 5:44 a.m. and continues with 40 trains until 2:40 a.m. the next day. Peak period eastbound is from 7:20 to 8:31, when eight trains leave Paoli every morning. Afternoon westbound trains are more scattered. Paoli is a stop for such through trains as the *General*, the *Red Arrow*, *Broadway Limited*, *Manhattan Limited* going west only, the *Pennsylvania Limited*, and most others.

251

Griffiths.

Sumpter's Last Stand

Primarily a lumber hauling road, the three foot gauge Sumpter Valley Railway, extending from Baker City 60 miles southward into Oregon's Blue Mountains, also hauls some other freight and an occasional passenger who must ride in the caboose of a freight train. Although completely free of debt and still piling up a profit, the SV faces abandonment because less timber is being cut in the area.

Some of the railroad has already been abandoned. Back in the '20's it extended from the present end of line at Bates onward to Prairie City, 20 miles. This portion was forsaken at the end of depression year 1932. Regular passenger train service was continued on the balance of the line until July 31, 1937, when it was evident that the traffic no longer required a train. The old yellow passenger cars are still sitting in the freight yard at Baker, where connection is made with the Union Pacific.

The photo on the preceding pages, by H. R. Griffiths, was taken in Powder River Canyon.

↓ Freight yards at South Baker. Building at left of flats is enginehouse.

Griffiths.

Narrow gauge Diesel switcher ↓ is used in the Baker terminal yard.

Clegg.

An office since 1937, the Baker passenger depot ↓ is opposite UP depot.

Griffiths.

Griffiths.

No. 16 ↖ ↑ and two other wood burners like her were used extensively in both freight and passenger service until the present 2-6-6-2's were bought from the Uintah Railway. Now they are at work in Peru.

This picture story of the Sumpter Valley Railway is the combined work of H. R. Griffiths, Lucius Beebe, and C. M. Clegg. Hank Griffiths submitted his photos as an entry in the recent Trains photo story contest. They won an honorable mention. The photos by Beebe and Clegg will be printed in their book "Mixed Train Daily, a Book of Short Line Railroads," which will be published by E. P. Dutton this fall.

Griffiths.

↓ Old passenger cars. ↗ Three-rail tracks at Baker; UP at right. ↘ No. 251 starts south with 39 cars.

Clegg.

Griffiths.

Griffiths.

Just south of Baker the railroad traverses a wide valley. Southbound trains ↑ consist mostly of empty flat cars consigned for the mills at Austin, and it's easy for the crew in the cupola to see the engine 39 cars away ↓. The Sumpter Valley 2-6-6-2's are oil burners now, but when they were in service on the old Uintah Railway in Utah they used coal for fuel.

Griffiths.

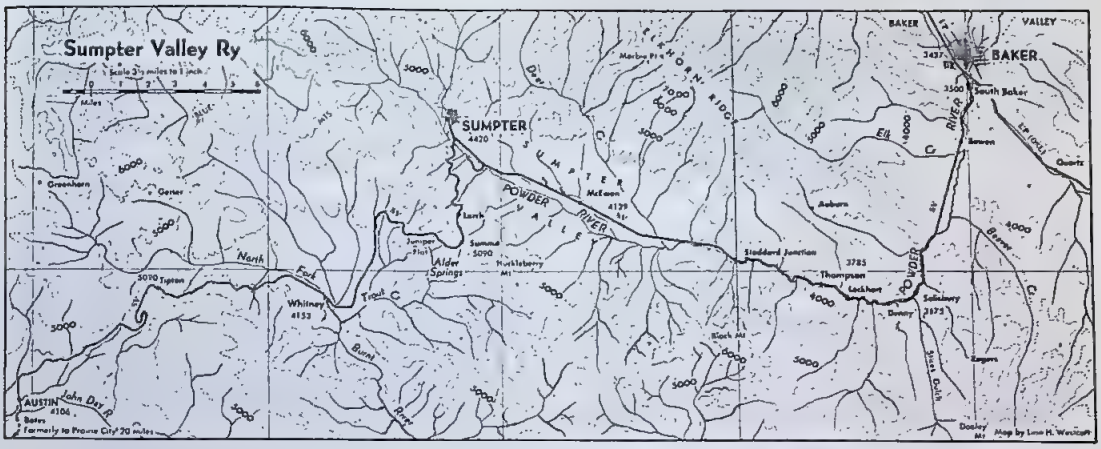
Griffiths.

Eight miles south of Baker the uninteresting flatness of the wide valley narrows to a scenic route alongside the Powder River ↑. In the gorge near Thompsons (see pages 18 and 19) the canyon seems little wider than the railroad itself. The rails follow the stream through the gorge and across Sumpter Valley to Sumpter. The Powder River is crossed several times ↓.

Griffiths.

Griffiths.

S Wye ↑, 28 miles out of Baker and one mile from the town of Sumpter at the west end of Sumpter Valley, gets its name from the fact that the rails split here, one leg going to Sumpter and the other (to the left) continuing on to Bates. The line crosses rock piles left by a gold dredge as it departs from the Powder River (↑ bottom). A heavy four per cent climb is in prospect, and the crew fills the water tank ↗ before leaving S Wye which has a section house for track crews.



↑ Hardest part of the railroad's climb to Bates is south of Sumpter. Two high mountain ranges must be crossed.

Griffiths.

Beebe.

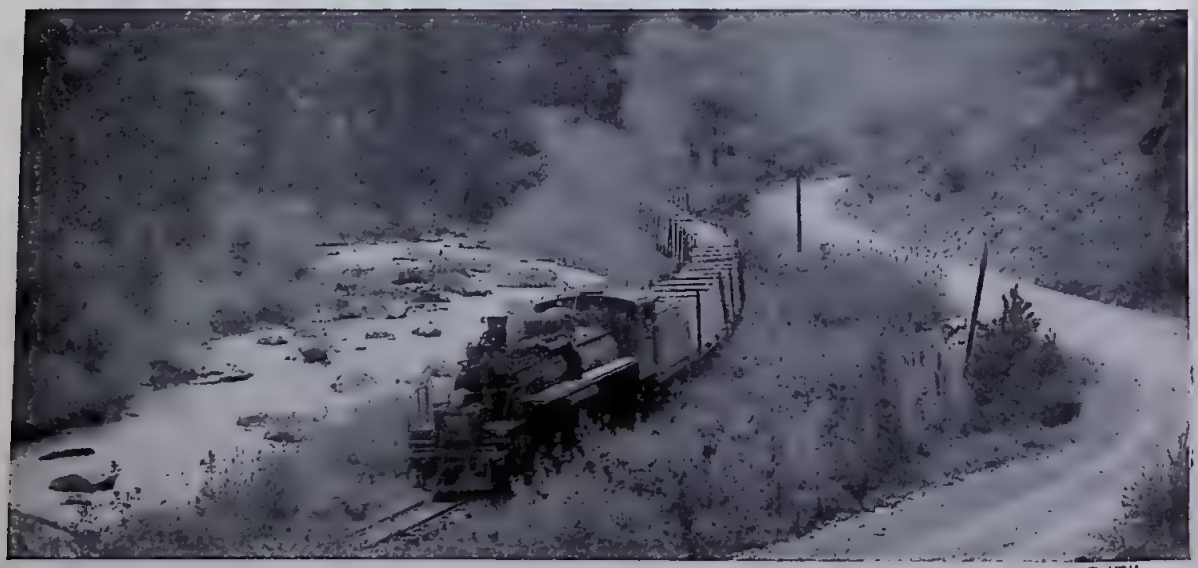
Southbound trains double the hill from S Wye to Larch. Engine 251 returns light to pick up the rest of the train ↓. Northbound, No. 250 ↑ drifts into S Wye with a 21-car train of lumber and stops at the tank for water and an oiling →.

Griffiths.

The Powder River Canyon is one of exceptional beauty as seen from the Sumpter Valley Railroad's narrow right of way, with fallen trees kowtowing to their hardly more fortunate brothers who have just been through the mill →. After leaving S Wye ←, No. 250 negotiates the narrow river canyon ↓.

Beebe.

Clegg.



Griffiths.

Although little steam is used on the northbound trip from S Wye to Baker, as it is all downgrade, a train brought to a stop on a reverse curve ↑ requires help from the locomotive in getting started again. On the heavier grades betwen S Wye and Bates, speed is restricted to 15 miles per hour and a train brought to a stop on a downgrade in this section must not be started under steam. Brakes are released and gravity starts the train. Nowadays little use is made of the railroad's communication system (a pair of wires and telephones spaced at intervals along the right of way) because only three round trips are made per week, southbound one day and northbound the next. Only one train operates at a time.

Beeb

Cleg

Because the green lumber carried in the Sumpter Valley's narrow gauge cars → cannot be shipped farther than Baker without transfer to standard gauge cars, much of the railroad's advantage over highway transportation is lost. Thus the Sumpter Valley has petitioned to abandon. In the future a fleet of trucks will carry seasoned lumber from kilns at Bates to Union Pacific cars at Baker.

Albert Farrow, 138 10th St. S., Auburn, Wash.

Battle of the Snowflakes

Fight to keep line open begins long before first snowfall and continues with progressive intensity as winter storms approach

BY STEPHEN BOGART

The melodic notes of "White Christmas" blaring over the loudspeakers in the terminal concourse may cheer the homeward-bound commuters, but the lyrics aren't exactly "Hit Parade" in the executive offices on the second floor. Ironically, the same white stuff which gives the railroads their revenue-earning ski trains also socks them in the pocketbook with staggering removal costs and, poets and song writers to the contrary, the cottony flakes soon lose their beauty when they begin to leave footprints on the profit and loss statements and timetables of the nation's carriers.

The battle against snow begins long before winter's leaden skies appear. It may still be shirt-sleeve weather when you first notice the freshly painted and overhauled snowplows standing on their strategic sidings. Soon after that, as the leaves begin to color and fall from the trees, rolls of snow fence turn up here and there and gradually stretch themselves along the right of way. Drums of kerosene, each labeled "Keep Lights and Fires Away," mysteriously appear at sidings and section houses, and occasionally a new broom will be found hanging from a post near some isolated switch. In the general offices the purchasing agent places orders for ice-melting chemicals to be distributed to station agents up and down the line and the supply department receives an unusual number of requisitions calling for brooms, shovels, and ice choppers.

These preliminary moves emphasize the policy of preventive snow fighting currently in vogue. Railroaders have found by experience that it is easier to keep the tracks open than to

M. A. Kastre, Chetek, W

Frequent fast trains aid greatly in keeping the line open. ↑ One of the Burlington's hoof-nosed Zephyrs makes swift work of a drift on its Chicago-Minneapolis line. ↖ Northern Pacific uses a rotary to clean out Tunnel 2 Cut in the Cascades.

plow out a line once it becomes blocked. Years ago a heavy snowstorm meant that nonperishable freight was shunted onto the first available siding, often to become snowed in for weeks at a time, and only passenger, mail, and perishable traffic was moved. This frequently meant sending a plow with every train, and sometimes a second plow to rescue the first. But a short train or light engine every half hour or so can do more to clear the rails than the most efficient snowplow, so present-day standards call for the movement of as much traffic as possible, with trains shortened as required by the severity of the storm. This method reaches its ultimate on electrified interurban lines, which operate shuttle trains of empty cars, with all pantographs raised, back and forth through the periods when regular traffic is slack.

The most important single factor in the war against winter is the men themselves. From the highest official to the lowliest shoveler, the success of the campaign depends on the skill, initiative, and judgment of the workers. Without men to run them the most powerful rotaries are worthless, and without men to direct the campaign there can be nothing but confusion and wasted effort. It takes hairline judgment to know whether to call out the extra shovelers or let the regular force handle the job. Men called out unnecessarily raise the pay roll; men called too late must work longer and harder to catch up. It's the same with the machines. A rotary sent out for a job a push plow could handle is a machine wasted; a push plow stuck in deep snow must call for extra men and equipment to break free. To know just what equipment to

William Moedinger Jr., 23 E. Vine St., Lancaster, Pa.

Timber snowsheds, once used extensively on mountain lines, are gradually becoming extinct due to fire danger. This structure ↑ on the Denver & Rio Grande Western narrow gauge line from Denver, Colo., to Ogden, Ut., includes a station and covered turntable. Roof vents are closed at the approach of a snowstorm. Passenger service over this line has been discontinued in favor of affiliated bus service. → Braintree, Mass., just after a blizzard. The new Haven's tracks are clear.

use and when to throw it into the battle is the difference between *keeping* the line operating, and *getting* the line operating.

One of the most efficient snow fighters is an insignificant-looking device which never makes a move all winter long. This is the snow fence, a flimsy structure of wire and lath which is stretched parallel to the right of way in spots where past experience has shown there is a tendency toward drifting. By inducing artificial eddies and swirls to the snow-carrying air, the fence causes the drifts to form in its lee and at some distance from the tracks instead of in the cuts and along the flats. A companion to this is the electrified fence which automatically sets danger signals should a snow or rock slide break its wires. The electrified fence is a permanent installation. Snow fences are taken up and repaired during the summer months.

Another silent, motionless fighter is the wooden snowshed, a few miles of which still exist in the mountainous areas. The tremendous cost of these structures, their highly inflammable nature, and the impossibility of ever constructing enough of them have coupled with newer methods and more powerful snow-fighting machinery to force these synthetic tunnels slowly toward extinction.

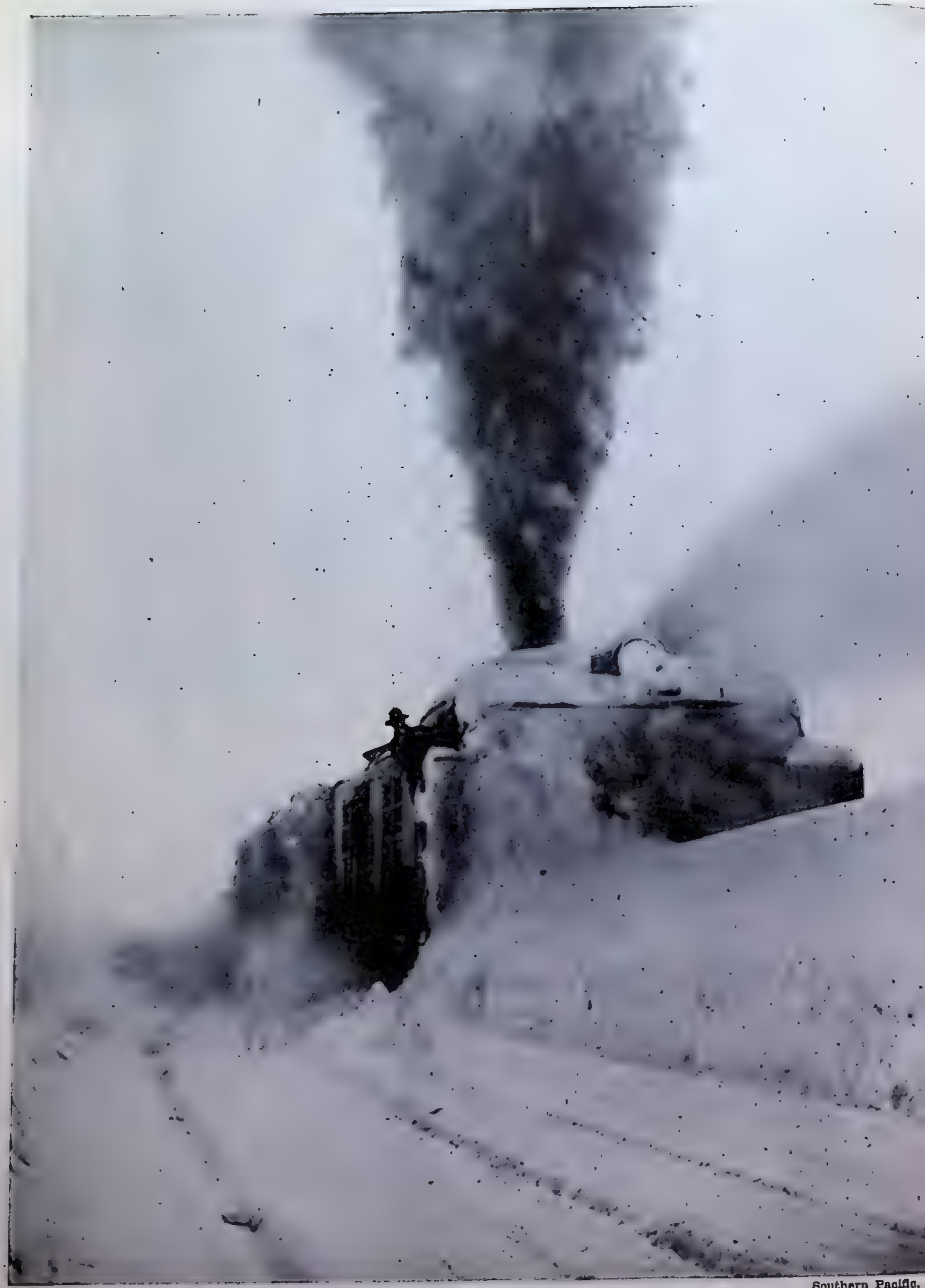
Switches and crossings present a big problem to the winter warriors. Modern interlocked switches will not permit a signal to be cleared until the switch points are tight against the stock rail and locked there. Snow in this opening, particularly wet snow, can prevent the functioning of the plant. Hand sweeping with brooms is the most satisfactory way of removing this packed snow; heat supplied by kerosene burners, steam pipes, or the newer electric heaters will prevent it from forming in the first place. Steam heaters are used only in the vicinity of large terminals and at relatively short distances from boiler houses; the kerosene-fired pan resting on the ties between the rails is by far the most common de-icer in use today.

New York, New Haven & Hartford.

The fitful glare of these fires, silhouetting a line of freight cars through a veil of needle-pointed sleet, is a night-time thrill never to be forgotten.

Occupied yard tracks are particularly aggravating to clear, as the white flakes have a tantalizing way of drifting in around the wheels of motionless cars while cold stiffens the grease in journals and freezes wheels tightly to the rails. Frequently a powerful switcher must couple on and break the cars loose a few at a time in order to get traffic moving. On the other hand, unoccupied tracks can readily be plowed clear — but moving the snow off one track merely heaps it on another, so some wholesale method of removal must be resorted to. Different roads handle this in different ways, depending on their available equipment. Some roads plow out every second track, piling the snow on alternate tracks, then use a power shovel and string of dump cars to pick the stuff up and cart it away, while others have developed special snow-removal equipment for this purpose. One northern road has an endless-belt loader which hoists the snow into a melting tank, from which the resulting water is piped into a storage unit made over from two tenders coupled back to back. When capacity has been reached the whole train moves to the nearest trestle and valves quickly empty the slushy mess into the river. Several roads have experimented with highway type snow-removing equipment and have found the rubber-tired, motorized plow and loader an efficient means of clearing yard areas, team tracks, and large station platforms.

But let us suppose we are fighting an actual snowstorm, a storm which has already been blowing for several hours. The dispatcher has already cut trains to half their usual tonnage; now he is marking up delays on the sheet. Every section crew has been mobilized; heaters are lighted at all main switches. Even at lonely depots the agents have spread ice-melting chemicals on walks and platforms. In the general offices the division superintendent and staff



Southern Pacific.

Passing sidings as well as the main line itself must be cleared of snow. A Southern Pacific rotary plow ← takes a deep bite into a Neapolitan brick ice cream formation on the Cascade line. → A Union Pacific wing plow is pictured at Ellsworth, on the Kansas prairie, after a hard snow fight in 1912. ↘ Narrow gauge D&RGW plow in 1940.

receive a constant flow of reports by phone, telegraph, and teletype. Weather charts are studied; new forecasts indicate little hope for clearing. The mercury is falling and the wet snow can be expected to form a hard crust.

A train crew reports from an isolated telegraph station and the superintendent decides to call on his mobile reserve. He calls the dispatcher, does some hurried phoning to the roundhouse, and a flanger goes out. This is a homemade affair, a gravel-weighted gondola equipped with a device to clear the flangeways of accumulated ice and snow. Ropes from the engine cab control air hoists which raise the flanging equipment each time the familiar triangular marker alongside the tracks indicates a switch, crossing, or guard rail. Failure to raise the flanger blades would rip out these installations and possibly wreck the train.

Another phone is ringing now and the dispatcher receives a report of powdery snow drifting on the lines west. A light engine is stalled on a siding at WF Tower; if the drifted areas are not opened to traffic shortly, the whole line will be snowed in. The wedge plow is ordered out

Slides like this one on the Colorado & Southern ↗ require careful probing before being tackled by a rotary plow to make certain rocks or tree trunks will not foul the blades. A rotary with three pushers leaves Como, the important division point on the now abandoned C&S narrow gauge ↓. Chicago & North Western rotary plow ready for duty →.

From top: R. H. Kindig collection; J. W. Maxwell; TRAINS collection (2); Paul W. Bradley collection.

O. William Witbeck.

Snowplows, like tanks in military combat, do the heavy work in fighting snow, but as in actual warfare, the "infantry" must do the mopping up. ↑ This is a 1940 scene on the Chicago & North Western following a heavy snow on Midwestern plains. ↘ Closeup of Milwaukee Road plow at shops shows details of cutting blades which bite into snow.

and two powerful locomotives push it down the lead and onto the main. This plow is of steel, gracefully curved to throw the dry snow aside in billows just as the bow of a steamer splits the ocean waters. Old-time wedge plows were made of fine hardwood, beautifully fitted, sanded and varnished, and were frequently pushed by as many as 10 locomotives. Standard practice was to charge a drift at speed and, if the plow failed to break through, back off and try again. More than one locomotive boiler was sheared from its frame and many a fine plow was hopelessly crushed by this bucking procedure, while poor visibility due to the width of their wings added to the accident toll of the old plows.

Now our blizzard is at its height. Snow-plastered trains are crawling into the yards hours behind schedule, but reports show everything is still moving, albeit slowly. Then a section foreman calls in from a lineside phone and reports a snowslide in a pass. The line is blocked temporarily; stop signals have been placed in both directions.

Wearily the superintendent orders out his most spectacular piece of equipment, the rotary plow. During the run to the blocked section, while the big nine-foot wheel is slowly turning to prevent the grease from stiffening, it's interesting to note that Lewis Bergendahl, an Oregon Railway & Navigation Company pumping station maintainer, got the idea for this mechanical whirlwind in 1885 from watching a windmill (which he had traveled many miles to service) toss flying snowflakes from its revolving wheel. In early 1886 he built a working model which performed satisfactorily and later in that year a firm of engineers constructed a number of the Bergendahl plows, but patent technicalities cost the inventor the fame and fortune which was rightfully his. Although a Canadian dentist, J. W. Elliott, had developed a crude plow in 1869 and another Canadian had added a second wheel, revolving in the opposite direction, about 1883, both these machines were too clumsy to be practical and the German-born Bergendahl therefore really fathered the rotary.

The plow train eases to a halt as a fusee blossoms into scarlet and a section man climbs into the cab of the first engine, directly behind the plow. He reports that a week of alternate freezing and thawing built up an overhanging ledge of ice, that more snow piled on top of it and this extra weight, or perhaps the vibration from a passing train, sent the mass plunging down onto

the tracks. No, there are no tree trunks or rocks ahead which might shatter the whirling blades; his men have already probed the drifts with long poles.

The plow train backs off for a running start, then, with its wheel turning at high speed, the rotary is slowly and steadily shoved into the drift by the two locomotives. The open end of the machine partitions off and slightly compresses the snow for the whirling, propeller-like fan to bite into. This fan throws the snow back into the hopper, where the big wheel, its radial paddles not unlike a water wheel, tosses it 50 or 60 feet to the side through an adjustable chute. The action is really three-fold — first the sharp-bladed open end of the plow cuts out the segments, then the whirling blades chew them up and toss them back and finally, turning on the same shaft, the powerful wheel itself throws the snow aside. This combination is mighty hard to beat and it isn't long before the line is open and traffic rolling again.

In 1935 the Long Island Rail Road was completely snowed under for two days and more recently a combination of wet snow and heavy sleet weighted down Lackawanna pantographs so they couldn't make contact with the catenary. Steam locomotives were hastily called into service, and the gentlemanly DL&W issued a formal explanation and apology to its hundreds of commuters who were late for supper that evening. Again, at the most critical point of the war, the yards at Buffalo, N. Y., were so badly snowed under that a drastic embargo was invoked and military forces were ordered out to help clear the tracks, which goes to show that Old Man Winter can still hit hard despite the tremendous forces thrown against him by the railroads.

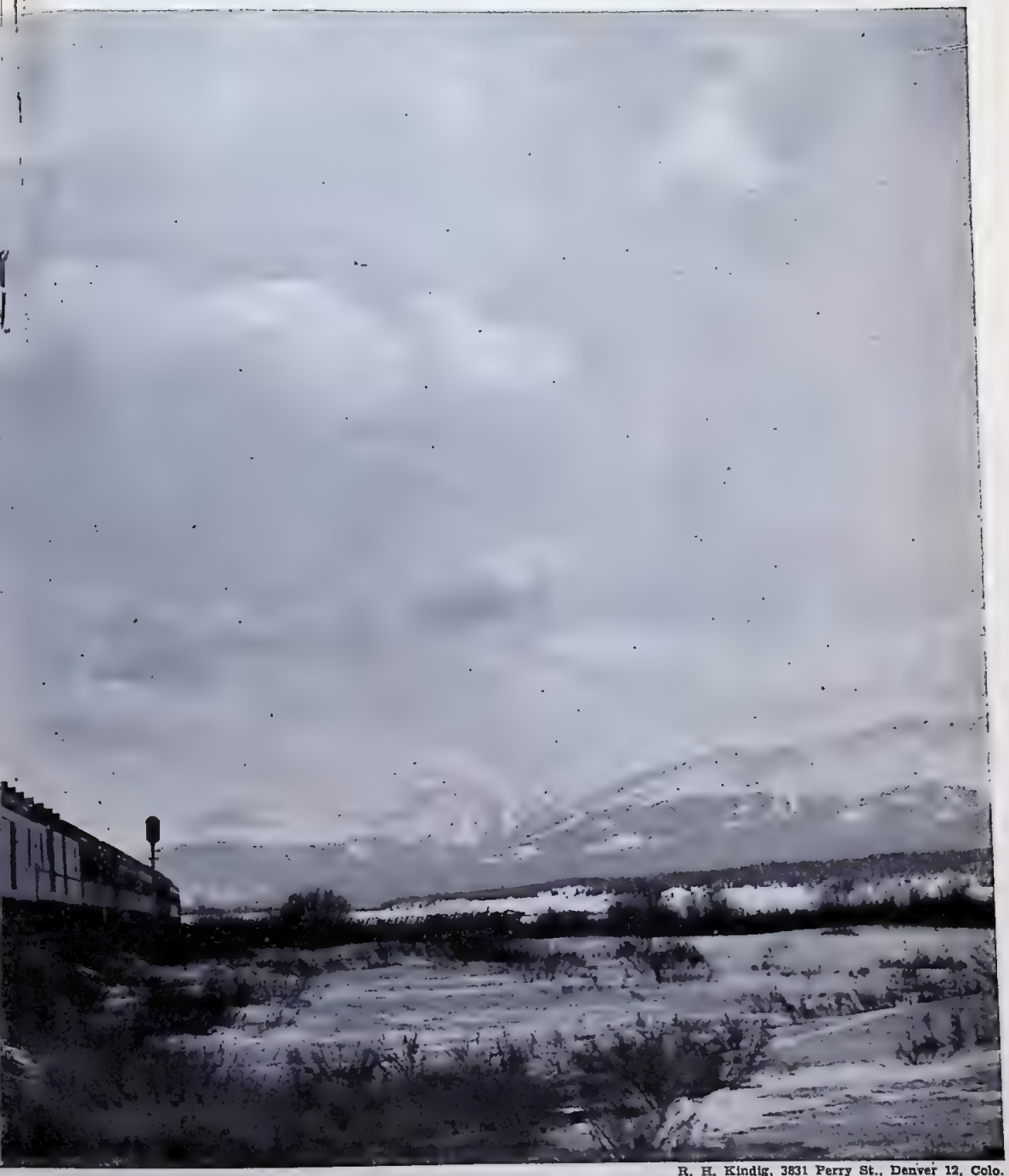
Like a Cork in a Bottle

Freeman Hubbard, in his book "Railroad Avenue" (McGraw-Hill, $3.75), tells of the time when the great actress Sarah Bernhardt arranged for a special train on the Ann Arbor Railroad to carry her private car from Ann Arbor, Mich., to Toledo, O., on Christmas Day, 1880. She had an engagement at the old Wheeler Opera House that night. Heavy snows had made deep drifts in several cuts, and passing trains had slashed a passageway barely wider than a standard car. Before the special was due to leave it began to snow again and a train of empty freight cars was dispatched to keep the line open. All went well until the actress' train arrived at a cut near Urania, Mich. Miss Bernhardt's car was 18 inches wider than standard, and it became wedged so tightly in the snowbank that the train could move neither forward nor backward. She missed her engagement at Toledo and it was not until next afternoon that the train was extricated by 100 men with shovels.

Milwaukee Road Photo by Harvey Uecker.

Up Tennessee Pass

**Back in the days before World War II when Civili
work this Rio Grande special was snapped with
The 15-car train is shown climbing Tennessee Pass
continental divide. The Pass, with its three per ce**



R. H. Kindig, 3831 Perry St., Denver 12, Colo.

an Conservation Corps boys were at a load of C's west of Malta, Colo. on the D&RGW's main line across the ent grades, is crossed at 10,239 feet above sea level, the highest altitude reached by the main line of a standard gauge railroad in the United States. Originally this route was a narrow gauge branch line but by 1890 the entire Denver-Ogden line was made standard gauge, crossing the divide at Tennessee Pass instead of the original Marshall Pass to get an improved route.

Sunset of an Empire

Buffalo & Susquehanna was built as an integral part of the lumber, coal, and iron business of the enterprising Goodyear brothers

Straddling the New York-Pennsylvania state line on timetable-style maps of the Baltimore & Ohio Railroad is a lonesome looking wishbone of track completely isolated from the rest of the B&O's sprawling system. Center of the wishbone is the town of Burrows, Pa., with Wellsville and Addison, N. Y., at its western and eastern tips. This and a short branch are practically all that is left of a once rowdy, rich, and robust railway dynasty, the fabulous but short lived Buffalo & Susquehanna Railroad. Separated by a gap of 40 miles is the rest of the old B&S, running southward from Sinnemahoning to Du Bois and (not shown on B&O maps) Sagamore, Pa.

At the height of its career, Buffalo & Susquehanna steel stretched from the Great Lakes, at Buffalo, southward into the rich coal fields in Armstrong and In-

H. D. Runey.

BY H. D. RUNEY

diana counties, deep in Pennsylvania. Its 85-pound rail traversed prosperous farmlands and highly productive dairy country and penetrated the rugged mountain forests of northern Pennsylvania, where dozens of crooked logging spurs reached out like tentacles into the virgin hemlock timber. Sawmills and tanneries swelled the tide of traffic on overburdened B&S tracks, which terminated many miles farther south in the bituminous coal region of Indiana County.

Controlled by the owners of the railroad were many other interests, all contributing heavily to the line's freight and passenger business. Among these were large iron works, coal properties, lumber mills, vast acreages in timber, and a steamship line on the Great Lakes to handle ore shipments from the company's properties in Michigan and Minnesota to its iron works at Buffalo. This industrial empire was owned, operated, and controlled by Frank H. Goodyear and his brother, Charles W. Goodyear. It was a gigantic and influential combine.

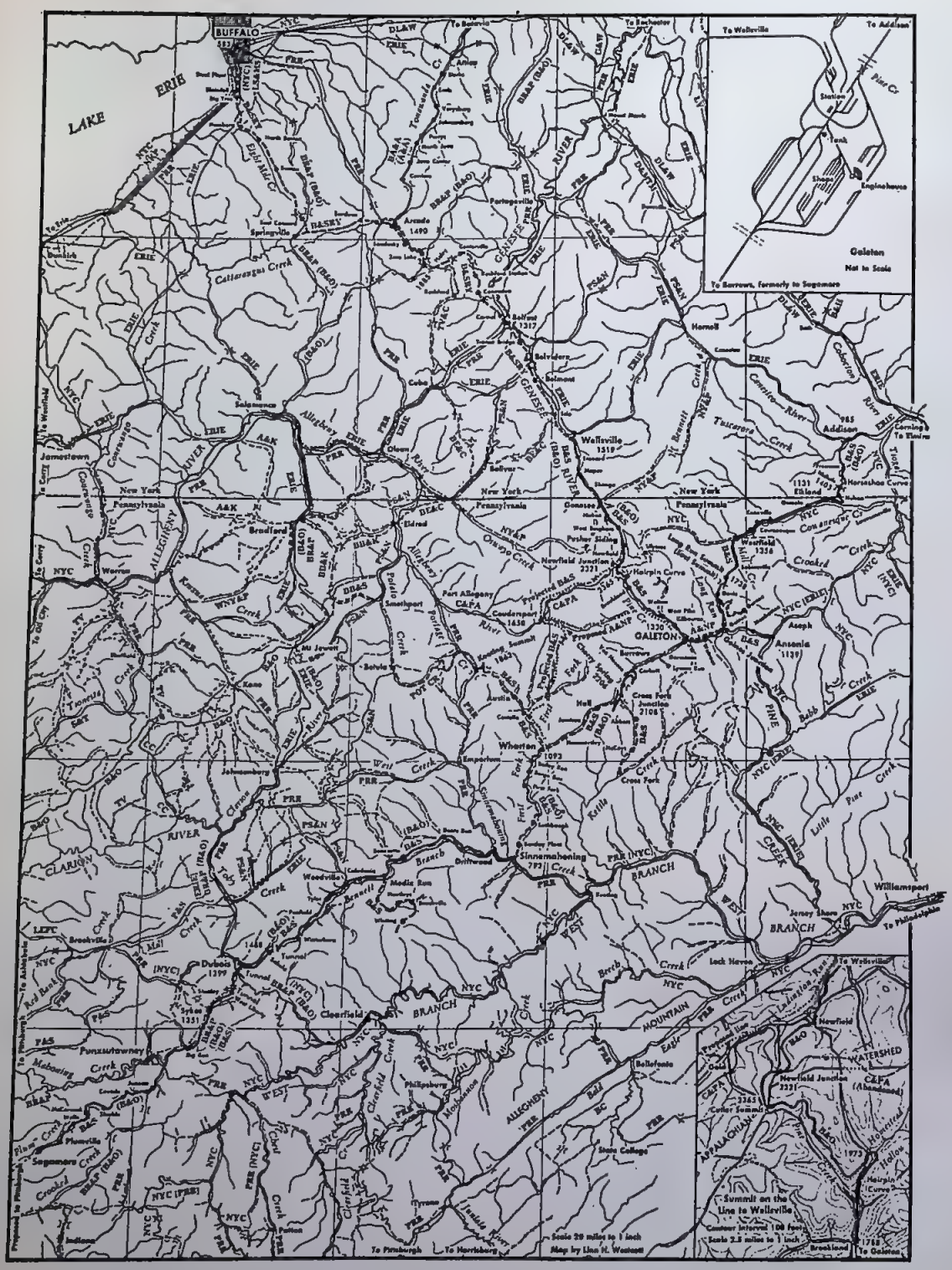
Only one daily passenger train now operates over the sawed-off remnant of the B&S, running 46 miles between Galeton and Addison and connecting with Erie trains 1 and 8 for points west and east on the Erie. It is the sole passenger connection to the little mountain village of Galeton, population 1820. One freight train a day is also operated on this run, and another runs 37 miles between Galeton and Wellsville on the western spur, connecting with the Coudersport & Port Allegany Railroad at Newfield Junction, Pa., and with the Erie at Wellsville. The six miles south from Galeton to Burrows is operated for freight service only, as is the 8½-mile branch from Gaines Junction to Ansonia.

Every day of the week, passenger train 78 puffs out of the old station at Galeton to begin its two-hour run to Addison. Pulling the two-car train is a slim waisted, graceful Atlantic type locomotive. She was originally Buffalo & Susquehanna No. 275, now B&O 1485. Her spidery six-foot drivers have been rolling passenger trains on this run for more than 40 years. Schenectady built her in 1904, so she's no youngster, but the proud old engine still handles a train with a style and a flourish that is a credit to her builders and to the men who have run her.

The daily passenger train with engine, a coach, and a combination mail-express car handles a surprisingly large volume of express

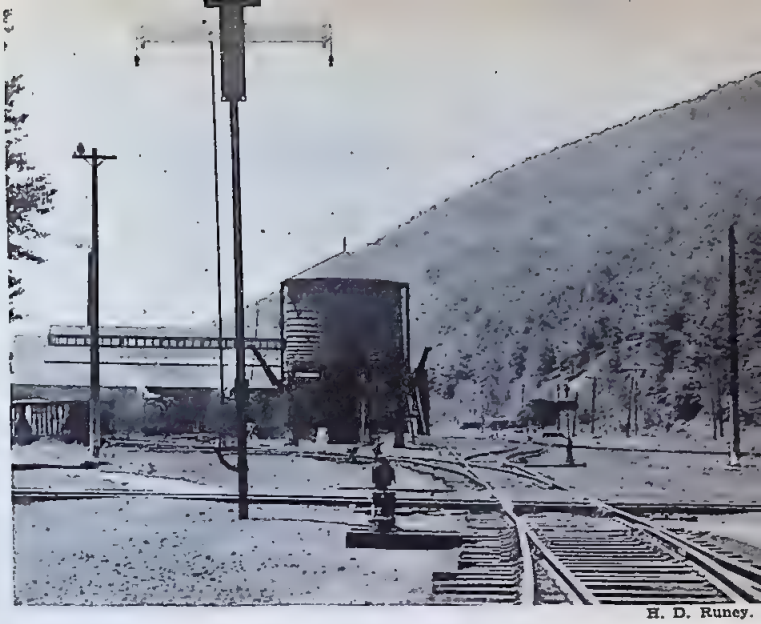
Had the Buffalo & Susquehanna gone to Corning, 11 miles east of Addison, N. Y., it could have connected with the Delaware, Lackawanna & Western, the New York Central, and the Erie. At Addison ↓ connections are limited to the Erie alone. ← No. 1485 waits at Addison.

H. D. Runey, 56 Arnold Ave., Horseheads, N. Y.



The Buffalo & Susquehanna System

The Baltimore & Ohio operates two systems in the Pennsylvania-New York area: the Buffalo, Rochester & Pittsburgh and the Buffalo & Susquehanna. The B&S was the product of the enterprising Goodyear brothers. Their system also included two descendants of the narrow gauge craze. These were the present Arcade & Attica, which once was part of the Tonawanda Valley and Cuba, and the Addison & Northern Pennsylvania, which ran from Addison to Galeton. In 20 years the Goodyear system, shown in heavy lines ←, developed from the initial track between Austin and Keating Summit into a network embracing 400 miles of regular railroad and 140 miles of lumber spurs. A 50-mile extension to Pittsburgh was about to be built in 1907, as was a cutoff between Wharton and Pusher Siding to eliminate bad grades by cutting through ridges with tunnels. But in that year Frank Goodyear died. No further construction was made and the line from Wellsville to Buffalo lost so much money that it was junked. Floods caused further extensive abandonments.



H. D. Runey.

The odd track arrangement ↑ at Galeton, shown in map inset ←, allows a train arriving at Galeton station ↓ from any direction to leave in any other direction without backing. ↑ Signal in diagonal position indicates way is clear for original main track. Horizontal position indicates clear for circle track on which trains turn from the Addison to the Wellsville line.

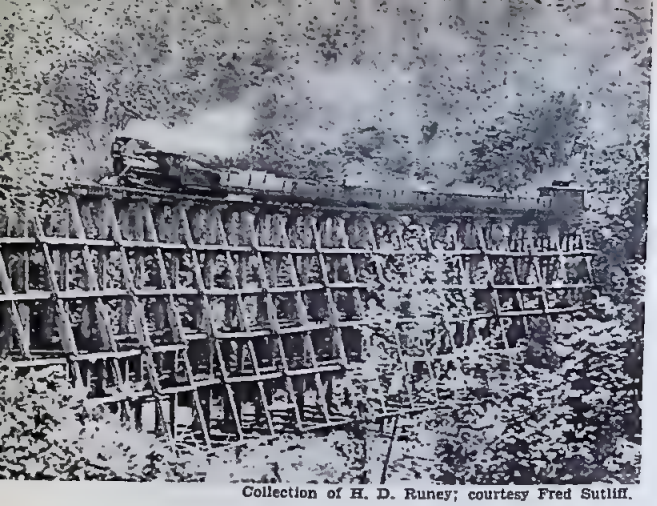
business, as well as a substantial amount of mail. The coach is usually comfortably filled with passengers, many of whom change to connecting Erie trains for New York City, Binghamton, or Buffalo at Addison.

Whoever it was, 50 years ago, who thought of advertising the Buffalo & Susquehanna as "The Grand Scenic Route" would undoubtedly be happy to know that this impressive slogan still applies to what is left of the old B&S. The scenery along the winding, wooded right of way is magnificent, and little different from what it was when the original narrow gauge iron of the old and nearly forgotten predecessor, the Addison & Northern Pennsylvania, pushed its way through the endless forests more than 60 years ago. The deer that today roam the hills and sometimes stray upon the track are the progeny of the deer of yesteryear which used to awe and delight passengers riding the bumping narrow gauge coaches over A&NP rails. Bear, small game and grouse are plentiful in the woods and fields along the line,

David R. Connor, Mahwah, N. J.

Morning line-up at Galeton enginehouse ↓. The Addison freight has left; engine 3120 (right) is marked for passenger service, and 3127 and 3128 will soon double-head a freight to Wellsville. Besides centering their railroad activities at Galeton, the Goodyear brothers also operated a lumber mill here. The timber on the hillsides is in its second growth.

David R. Connor.



Collection of H. D. Runey; courtesy Fred Sutliff.

Back in 1883 the narrow gauge Addison & Northern Pennsylvania Railroad hauled coal and lumber across wooden trestles in deeply wooded ravines ↑. Nowadays the Baltimore & Ohio runs through second growth and completely denuded hillsides →. Trestle scene was on Gurnee branch.

and in the boulder-strewn waters of Pine Creek the trout fishing is beyond compare. Much of the old Buffalo & Susquehanna and its forebear is left in the present line. Many of its miles are virtually unchanged, and the two-car passenger train that still puffs over them isn't much different now from 40 years ago, when the 1485 bore a different name and number and was self-consciously shining and fresh from Schenectady's shops.

Out of Galeton, with its old-fashioned paddle signal and sleepy "circus track" which allows a train from any direction to leave in any other direction without backing, the passenger train follows the mountain-cold waters of Pine Creek, crossing it and finally leaving it near Gaines. At Gaines Junction, a short distance south of the station at Gaines, the branch to Ansonia leaves the main line. This branch provides a freight connection with the New York Central's busy Pennsylvania Division, and the six-days-a-week freight from Galeton to Addison makes the run, backing up on the return trip from Ansonia to the junction. In earlier days, regular passenger service was maintained.

From the point where the main line leaves Pine Creek behind, it climbs steadily through rugged and beautiful woodlands, following Long Run to Davis Siding and finally topping the ridge at East Summit, a climb of about 450 feet in 10 miles. Near Davis, in palmy days long gone by, a profitable branch used to reach out into the mountains to the coal mines at Gurnee, a few miles to the northeast. The branch was originally built as a part of the A&NP, and was operated as the Gurnee branch. Today nothing remains of this spur, although the right of way is barely discernible at the point where the tracks joined the main line.

At East Summit both the railroad and a highway thread their way through a notch in the hills. The line then curves easily down through hilly farmlands into Sabinsville, a regular stop for the passenger train. Leaving the little vil-

H. D. Runey.

lage, the high-wheeled Atlantic takes hold easily, her clanging bell and deep-throated whistle sounding a warning for the highway crossing at the edge of town. Drifting quietly through the woods and fields along Mill Run, it is only a few minutes until the brakes take hold and the train slows to an easy stop at the station in Westfield. Here is the busy plant of the Eberle Tanning Company, a source of considerable freight for the line. And here the railroad enters the prosperous, level Cowanesque Valley from which most of its passenger, freight, and express business originates.

Westfield is the terminal of another railroad. This weed-grown, rusty track used to be the Cowanesque Valley branch of the Corning,

Cowanesque & Antrim Railway. It is now an ignominious and shabby part of the New York Central, and its activity consists of one short freight train a day, running from Lawrenceville Junction, on the Pennsylvania Division of the NYC. The return trip from Westfield is ingloriously made backing up, since no facilities are available for turning locomotives at the end of the line. This sad little branch runs closely parallel to the B&O as far as Elkland, where the B&O turns north, climbing out of the valley toward Addison.

At the hamlet of Cowanesque the two tracks cross on a rusty diamond that is almost hidden in tall grass and weeds. When both roads were new, this crossing was a hotly contested prize, each line endeavoring to reach the spot first so that the loser would be obliged to maintain the diamond. The A&NP was the victor, and although it doesn't seem at all important any more, maintenance of the grade crossing falls to the New York Central as assign of the CC&A. From the looks of the spot, the Central isn't required to do much in the way of maintaining this once busy intersection. Nevertheless all trains must stop before crossing the diamond.

Train 78, just hitting its stride out of Westfield, halts a few hundred feet clear of the Cowanesque crossing, then, after two short impatient shrieks from its whistle, it chuffs slowly over the Central's sorry-looking tracks. The haughty little passenger engine regains its dignity after this annoying pause by taking hold of its two cars and puffing mightily, quickly leaving the crossing behind in a haze of smoke.

Three or four miles beyond, the train slows for its regular stop at Knoxville, crossing the Cowanesque River and a main highway to reach the station. Stopping just long enough to load passengers, mail, and express, the train continues out of town along the broad floor of Cowanesque Valley toward Elkland. If it happens to be Sunday, the passenger train pauses in Osceola to pick up a milk car which it trails along behind the coach. Weekdays, the regular freight train handles this pickup. Train 78 does the switching quickly, with the engineer and 1485 co-operating nicely to make a smooth,

Scene of much travail was the mountain between Galeton and Wharton, where switchbacks ↓ were used to get trains over the top. One locomotive could handle 15 empty cars over the 2½ per cent grades, but it took two engines to move 12 cars loaded with coal. This is the Van Housen side.

Collection of Robert R. Lewis, Coudersport, Pa.

gentle coupling. Out on the main once again with the bright green of the switch targets behind her, the engine and her three-car train get under way for Elkland, seven miles distant.

Elkland is one of the most important stops on the line, for it is here that the monstrous sprawling tannery of the Elkland Leather Company is located. It is the largest town (population, 2400) served on this run, and a sizable amount of traffic originates here, along with much incoming business. The Cowanesque Valley branch of the NYC also serves Elkland, and its tracks and station are only a few hundred feet south of the B&O.

From the big red water tank near the station the 1485 takes a long drink before she tackles the twisting climb that lies ahead. The coach is well filled, and so is the express car, as the drivers bite into the well-sanded steel and the train pulls out of the station. The pleasant voice of 1485's whistle calls for the right of way as her pilot noses onto a highway grade crossing. Clean-cut chuffs grow faster and faster as her big wheels get the train rolling in anticipation of the heartbreaking, curving climb that lies ahead. The exhaust is a steady roar by the time the train whips past the odorous, endless tannery buildings that are the almost sole reason for Elkland's existence.

The iron starts to climb along the side of the valley, leaving the New York Central 100 feet below on the easy valley floor. Near Nelson, we turn north into the narrow valley of Bill Hess Creek, plunging into heavy woods. The engine's breathing slows down gradually, finally becoming a steady, labored puffing, as the rails carry

H. D. Runey.

Train 78 noses over the weed-grown crossing of the New York Central branch at Cowanesque ↑. Slowing to a stop at Elkland ↓, largest town on the branch, train 79 trails an empty milk car behind her coach. The milk car will soon be spotted at a creamery siding at Osceola.

H. D. Runey.

R. J. Kelley.

The flagstop station of Nichols, N. Y. ↑, is just a few hundred feet from one of the summits which the old Buffalo & Susquehanna line between Addison and Galeton crosses. Here a comparatively open valley becomes quite deep and narrow.

the train steadily upgrade and around a succession of sharply twisting curves. Slowly, with laboring grunts, the train leaves Pennsylvania behind and enters New York State. Deer and woodchucks and rabbits scurry out of the engine's path. The forests arch over the tracks, and the woods are dark and cool and fragrant as they close in on the rails and the train that winds forever upward. The right of way curves out of sight behind a hill as the train comes out in the open again; the puffing dies away and the smoke drifts gently back along the cars instead of cascading skyward.

A single long, insistent blast from the whistle announces that a station is just ahead. Coming out of the curve, the engine shrieks another warning, then crosses a blind highway intersection next to which nestles a faded red way station that is the flagstop of Nichols, perched almost at the crest of the hard-won summit. Seldom is the train flagged down at this lonely spot, but No. 78 approaches the station ready to pause for anyone caring to board her. If the station is deserted, the slowly moving engine digs into the grade for a few more hundred feet, then, all out of breath, she tops the crest and drifts quietly downward.

The rails wind through dense woods and occasional farmlands toward Addison. Still high up on a hillside, the tracks loop prodigiously around the line's "Horseshoe Curve," a mile or so out of Freeman, N. Y. Visible as the cars squeal slowly around the precarious bend are the abutments of an old and nearly forgotten trestle, the remains of a structure which years ago carried the narrow gauge wood-burning locomotives of the Addison & North Pennsylvania over the ravine that is now traversed by this curving fill known as the Horseshoe.

Dropping steadily down toward the valley below, the train drifts effortlessly, her brakes grinding to check the speed, as she plunges in and out of the cool forest that is broken occasionally by hilly pastureland. At the bottom of the hill the whistle warns swimmers on the bridge just out of Addison, and the bell rings as the train dives under a highway bridge and enters the village that is its terminal.

The Canisteo River is spanned on a spidery steel bridge; the tracks curve sharply and then

run along parallel to the heavy steel of the Erie's main line. It's 3:30 when No. 78 rolls to a stop across from the Erie station. The B&O once had its own station adjacent to the Erie's, but the old structure has been torn down and now the big road's facilities also serve the branch line train.

The step is handed down to a waiting brakeman, and the passengers' baggage is carefully set out on the platform. The neatly uniformed conductor and trainman assist the passengers from the train with as much courtesy and dignity as could possibly be displayed by crews of the same road's better known and more widely traveled *Capitol Limited* and *Royal Blue*. Meanwhile, the mail and express is unloaded from the head end — crates of rabbits from a farm somewhere down in the Cowanesque Valley, numberless crates of eggs and chickens, and other express of all descriptions. Engineer Don Heath climbs down out of the cab to look over his panting 1485, and together with the fireman he inspects the old Atlantic from pilot to tender.

With the milk tank car safely switched to an Erie siding, ready for eastbound train 8 to haul to Jersey City, No. 78 backs out of the station. Addison has no turntable, so the train backs slowly over the tracks on which it came into town, and turns on a wye at the outskirts of the village. Back at the station again, this time headed into the sun and ready for its return trip as No. 79, the train picks up an empty milk car for Osceola, then waits patiently. In a few minutes the bells on the crossing gates just east of the station begin to clang as the gates drop across the road, heralding the approach of Erie train 8 at 4:21. This is the eastbound *Atlantic Express*. The westbound *Erie Limited*, No. 1, arrives two minutes later. The long, heavy engines with their huge tanks and lengthy trains are unmistakably "main line" and the 1485 seems humble and tiny by comparison as she stands daintily on her light rails.

As the Erie puffs importantly out of town, a handful of passengers who are making the B&O connection walk across the heavy mainline steel and get aboard the coach behind the slim high-wheeler that will carry them on the remainder of their journey. The Erie trains are sometimes late, but the little B&O will wait for them if connecting passengers are known to be aboard.

Much has to be done after the train is turned on the wye. Passengers from the two Erie trains are put on board, and express and mail is transferred. The engineer and fireman carefully tend to the needs of the 1485 while the coach slowly fills with passengers. Then at 4:45 Conductor Gus Horn waves a highball and the wheels of the Atlantic slowly turn to start the train on its homeward way. Past the handful of tracks that are all that is left of the B&S's once spacious yards No. 79 swings into the curve and over the

David R. Connor.

Sometimes the Sunday train picks up two milk cars instead of one. This four-car train → is negotiating Horseshoe Curve near the Addison end of the line. Train 78 backs on the wye at Addison ↓ to prepare for the run to Galeton.

David R. Connor

Canisteo River bridge. In the quiet of the late afternoon her deep-throated whistle drifts back to the empty station as she rolls past the last of the grade crossings on the other side of town.

It's a sad kind of whistle, too. The 1485 and her train are among the last of their kind. Some day this little train out of the past will make her last run, and then if any passenger trains are run at all on the old B&S it might be an uninteresting, but more efficient, gas-electric car.

The Buffalo & Susquehanna began its tumultuous existence in 1885, when Frank H. Goodyear, a Buffalo lumber and fuel dealer who had already retired in his 40's, became bored with retirement and bought an 80,000 acre tract of timberland and organized the Sinnemahoning Valley Railroad Company to build a line from Keating Summit, on the old Buffalo, New York & Philadelphia Railroad (now PRR system), to Austin, Pa., where he erected a sawmill. As lumbering, tanning, and other industries came to life in the region, railroad lines under various names were extended, generally eastward. Galeton and Ansonia were reached in 1893, the year the various railroads were consolidated as the Buffalo & Susquehanna Railroad Company. In the meantime, Goodyear's brother, Charles W. Goodyear, had gone into partnership with him in his lumbering and railroad operations.

On New Year's Day in 1896 the B&S was running trains from Galeton on to Wellsville, N. Y., 37 miles, on a partly constructed and partly purchased line. That year the railroad earned only $35,000 on its $3 million investment — about 1¼ per cent. In 1898 the Goodyears bought the Addison & Pennsylvania Railroad, running from Galeton to Addison. This had originally been the three foot gauge Addison & Northern Pennsylvania, chartered in 1883 and built at the height of the narrow gauge craze by the same promoters who developed a vast narrow gauge system at Bradford, 50 miles to the west. After a notably unhappy and unprofitable existence the A&NP passed into receivership in 1886 and was then operated as the Addison & Pennsylvania under the control of its original owners. The gauge was widened to standard in 1893 and the road began using several secondhand locomotives of the New York, Lake Erie & Western (now Erie), with which the A&P connected at Addison.

Previous to the widening of its tracks, the narrow gauge line hauled standard gauge cars from the NYLE&W on its own three-foot trucks, transferring them at Addison by means of a locomotive-operated hoist. Originally, it had been planned to extend the line through Galeton into Coudersport, Pa., eventually to connect with the Bradford lines, but the company was plagued with financial difficulties and untimely floods and the A&P rails never went any farther than Galeton.

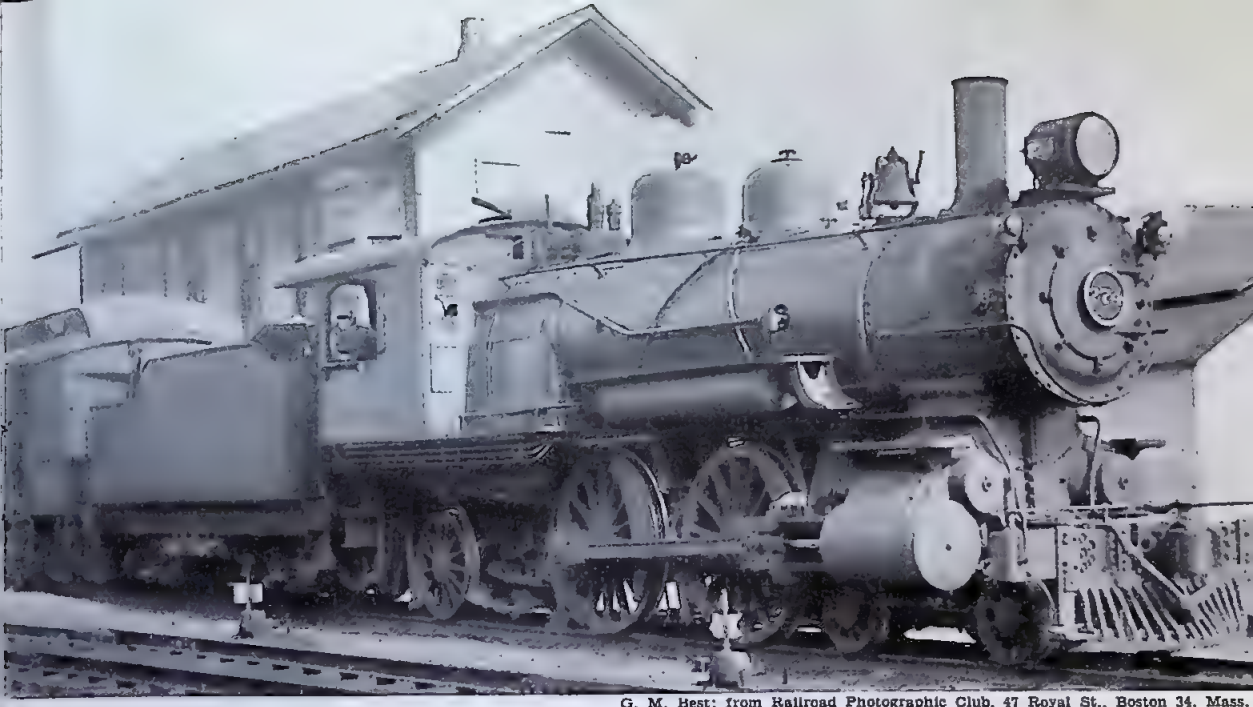
Shortly after the acquisition of the Addison & Pennsylvania, the B&S began to extend its lines in the opposite direction, and in 1900 was operating into Sinnemahoning, where it joined the tracks of the Philadelphia & Erie Railroad almost 100 miles south of its newly acquired terminal at Addison. The P&E (now PRR system) is a main line for through traffic between Erie and seaboard points.

An unusual feature of the line south of Galeton, on the portion now abandoned, was a series of switchbacks by means of which the railroad crossed the mountains. A train from Galeton to Wharton, 32 miles distant, proceeded to switchback No. 5, from where it backed the train up the mountain to switchback No. 4, then proceeded up to and across the top of the mountain and part way down the other side to switchback No. 3. It then backed down to switchback No. 2 and from there went on to Wharton. The length of the switchback leads would permit only 15 cars in one train.

The difficulties of such operation can easily be envisioned from the following account of a day's running over the 32-mile section, furnished by the Baltimore & Ohio:

"A train with one locomotive left Galeton with 30 empty coal cars and proceeded to Burrows. Because of a 2.06 per cent grade, 15 cars were set off here and 15 cars were moved over the mountain at Cherry Springs to Wharton, where they were set off. At Wharton, 12 cars loaded with coal were picked up and moved to Hull. Here, because of a 2.55 per cent grade, a helper engine was picked up. The two engines moved the 12 cars of coal to Cross Fork Junction, where the helper cut off and returned to Hull, the one engine moving the train over the summit to Cherry Springs and on to Burrows. The 12 loaded cars were then set off and the 15 empties which had been dropped before were picked up and moved to Wharton. Another 12 loaded cars were then picked up and moved northward with a helper as on the first trip. At Burrows the first 12 loaded cars were picked up and the train then moved on to Galeton.

"To move 72 cars of coal from Wharton to



G. M. Best; from Railroad Photographic Club, 47 Royal St., Boston 34, Mass.

When the Baltimore & Ohio took over the Buffalo & Susquehanna in 1932, engines were not only relettered but were also renumbered. B&S 274 ↑, shown at Addison before renumbering, is now 1484 on the B&O roster.

Galeton, and 90 empties from Galeton to Wharton, three trains were used with one helper engine assisting each of them twice, Hull to Cross Fork Junction. Each crew was on duty an average of 11 hours 30 minutes and made 116 train and engine miles. The helper engine was on duty 11 hours 15 minutes and made 104 engine miles. Total train miles, 348; total engine miles, 452."

At the height of the Goodyear lumbering operations more lumber is said to have been produced along the B&S than in any other similar area in the country. The Goodyears themselves were considered to be among the nation's largest dealers in coal and lumber. As the timber rapidly became depleted they looked around for other sources of business and traffic, and in 1903 purchased the Clearfield Coal Company at Tyler, subsequently incorporating it as the Buffalo & Susquehanna Coal & Coke Company. Additional coal lands were purchased, and the Powhatan Coal & Coke Company was organized to take over part of the properties. Other deals were made, and as the Goodyear empire grew the railroad was extended to serve it. Innumerable spur lines ran into the valleys of practically every brook and creek along the line. As the resources were exhausted the rails were torn up and relaid in some other valley. More than 140 miles of such spurs were reported in 1902 by the Goodyear Lumber Company and the Lackawanna Lumber Company, also owned by the Goodyears.

To take coal to their Buffalo & Susquehanna Iron Company at Buffalo, the Goodyears built a new railroad north from Wellsville into Buffalo, connecting with the three 10,000 ton vessels of the Buffalo & Susquehanna Steamship Company which plied the Great Lakes to bring ore from the Goodyears' iron mines at Hibbing, Minn., and Iron Mountain, Mich., via the Soo Canal. The construction of this extension, nearly 90 miles in length, was completed in 1906. It proved to be a disastrous undertaking, and was largely the reason for the company's financial predicament in later years. However, at the time, it was hailed as a tremendous achievement for the Goodyears, who were at the very pinnacle of their careers.

In 1907 the railroad was operating about 400 miles of lines, from Buffalo (into which city it ran over the Lake Shore & Michigan Southern for six miles) to Sagamore, Pa., more than 250 miles south. In addition, the road was doing a nice business on its line from Galeton to Addison and had several minor branches besides the logging roads owned by the Goodyear and Lackawanna lumber companies. Over these lumber railroads droves of Shay geared locomotives puffed precariously through the mountain forests, hauling their loads of hemlock to the Goodyear-owned sawmills from where they would be shipped out over the rails of the Buf-

falo & Susquehanna. The largest of these mills was at Galeton, with others, all big operations, at Austin, Asaph, and Medix, Pa. The Goodyears had additional smaller mills operating throughout the region.

The steamship line, iron works, coal mines, merchandise stores and railroad made the Goodyear empire one of the greatest in the country. The brothers by this time were also owners of lumber mills in the South, and they built the New Orleans Great Northern Railroad, 130 miles long, as a venture similar to the B&S but more successful. This line later became the Gulf, Mobile & Ohio system under the guidance of A. Conger Goodyear, son of C. W. Goodyear, who is present chairman of the board of the GM&O.

Traffic and tonnage from independent industries and sawmills likewise moved over the B&S. All kinds of finished wood products from other producers were loaded into freight cars on B&S lines. Many large tanneries located on the system and provided the railroad with a flood of traffic. The tannery at Costello, to which the Goodyears sold all their hemlock bark, claimed that it was the world's largest.

Coal and coke from the southern region of the system made up the greater part of the line's tonnage, and these, together with lumber, leather, and miscellaneous freight, made the Buffalo & Susquehanna a wealthy and prosperous road. A considerable volume of passenger business was handled all over the system, and it was during this era that the line was proudly advertised as "The Grand Scenic Route." Pullman parlor cars ran regularly into Buffalo on the B&S, and elsewhere on the road many daily passenger runs were scheduled.

The boom became a bust, however, shortly after 1907, when Frank H. Goodyear died at the peak of his fabulous success. Finances became increasingly more complex. Plans to eliminate the switchbacks with two one-mile tunnels on a new line from Wharton to Pusher Siding were shelved along with improvements on the Sagamore branch, including detailed proposals to extend that line right into the heart of Pittsburgh.

The Buffalo & Susquehanna Rail*way*, that portion of the system running from Wellsville to Buffalo, leased the Buffalo & Susquehanna Rail*road*, which comprised the rest of the line, in 1907, and the entire system was operated as the Buffalo & Susquehanna Rail*way*. The railway, under the terms of this lease, was to guarantee interest and principal on the railroad's debt, as well as pay four per cent dividends on its own stock. This proved to be an impossibility, and the company was beset on all sides by financial difficulties. In 1910 H. I. Miller, who had been president of the New Orleans Great Northern, was appointed receiver for both the railroad and the railway, and operated the lines until the formation of the Buffalo & Susquehanna Railroad Corporation in 1913.

New York Supreme Court Justice H. P. Bissell, a former law partner of C. W. Goodyear, ruled in 1914 that the eight-year-old main line from Wellsville to Buffalo should be torn up for lack of traffic. At first it seemed that the owner of an interurban network in the Olean area would buy the line and turn it into an interurban route using gasoline motor cars for coaches. But this ray of hope dimmed and after several court extensions of time the line was junked in 1916 to make the best of the wartime scrap market. All the rails, bridges, and other steel were sold to France for what is said to have been a very substantial sum.

The rest of the line was operated by the new corporation with the former receiver as chairman of the board. In 1932 the railroad was purchased by the expanding Baltimore & Ohio. Under new management the engines were renumbered and the "Buffalo & Susquehanna" which had been lettered on its rolling stock was replaced by the name of the new owner.

On July 18, 1942, flood waters washed out much of the track south of Galeton, isolating the branch from its southern connection with the parent system. The cumbersome switchback line was not rebuilt, and the B&O was granted permission to abandon this section, from Sinnemahoning to Wharton, Austin, and Burrows. The original Austin-Keating Summit and the Potato Creek line had been ripped up some years before. What is left is operated as the B&S subdivision of the B&O's Buffalo Division.

Forty miles to the south lies the rest of the old B&S, in an even more embarrassing position. Part of the line is no longer shown on timetable maps. Freight service only is operated over the 48 miles from Sinnemahoning to East Du Bois and the 20 miles from Juneau to Sagamore. Frank and Charles Goodyear are gone, and with them is gone much of their empire.

Only freight trains operate over the line from Galeton to Wellsville. This northbound freight ↗ is negotiating Hairpin Curve just north of Brookland, Pa., 11 miles from Galeton. Wellsville-bound freight → leaves Galeton behind engines 3128 and 3127, originally B&S locos.

H. D. Runc

David R. Conne

Heart of the Burlington

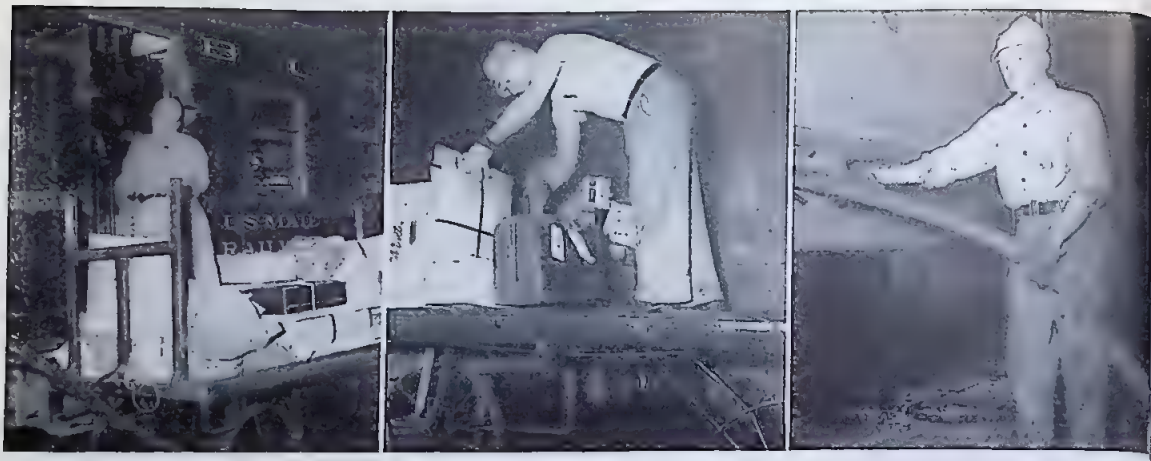
Traffic center of the Chicago, Burlington & Quincy Railroad is Galesburg, Ill., 162 miles southwest of Chicago. This little city, headquarters of the Galesburg Division and dividing point between the Ottumwa and Aurora divisions, is a stopping place for every one of the 31 passenger and 40 freight trains which daily roll over the six lines radiating to the east, west, north, and south. Its Willis Yard includes the largest individually owned railroad hump yard in the world, besides a rail yard and tie-treating plant which serve the entire 11,000 miles of Burlington railroad in 14 states. Its 41-stall roundhouse and huge turntable accommodate locomotives up to 125 feet in length. It has a repair yard and wheel shop, an icing plant with

PHOTOS BY HENRY J. McCORD

a capacity of 50 cars at a sitting, and a stock yard which originates 15 cars of hogs a day besides feeding carloads of cattle en route from the West. Its freight house transfers 150 carloads of l. c. l. freight a day. Roughly one out of every six of Galesburg's 30,000 population is an employee of the "Q."

Willis Yard stretches five miles southward

Galesburg's large passenger station ↖, which houses division headquarters on its second floor, is daily a scene of great activity as 31 passenger trains arrive and depart. Many of the crack mainline trains such as the Denver Zephyr ↓ make only fleeting pauses for change of crews and inspection of journals ↑, couplings ↙, and the like. Other trains stay longer and grow longer as cars are added. Still others grow shorter and leave as two separate trains over separate divisions of the railroad. Some branch line trains originate and terminate at Galesburg. Activity continues around the clock, and includes the transferring of a tremendous amount of mail, baggage, and express for which a large fleet of express wagons ↖ is kept handy on the station platforms. Tracks at far right ↖ are main line to Chicago.



Mail, baggage, and express are loaded and unloaded as a Diesel engine takes on additional water for its train-heat boiler.

from the city. Surmounting the waving corn tassels on all sides are the two humps over which 6000 to 6500 freight cars roll for classification every 24-hour period, and higher even than these are the towers of floodlights for night operations. Unlike other railroads, the "Q" does the bulk of its yardwork for the Chicago terminal area at the western end of the division

Ice for air conditioning is loaded into the sleepers as crews change. A switchman uncouples cars for different routes.

instead of in the city. The preclassified cars thus reach the city in the proper order for delivery to other roads. Shuttling back and forth over the 225 miles of track within the yard's confines are 24 Diesel switchers which are serviced right in the yards, returning to the engine terminal only for monthly inspection and repairs. Two steam switchers are also used at the engine terminal. Average stay of a 100-or-more car freight train is about two hours. Most of this time is spent servicing the train and changing locomotives; classification is done at the rate of three to five cars a minute, taking only a half hour for even the longest trains.

The six lines radiating from Galesburg include the Ottumwa and Aurora divisions of the main line running northeast-southwest through the city; a line southward to Quincy and Kansas City; another line southward to Beardstown and St. Louis; a line southeastward to Peoria; and a line northward through Rock Island to join the Chicago-Minneapolis line at Savannah. All lines run passenger as well as freight trains, and passenger operations at Galesburg include adding cars, transferring mail, baggage, and express, adding ice to the bunkers of air-conditioned cars, and originating and terminating branch line trains.

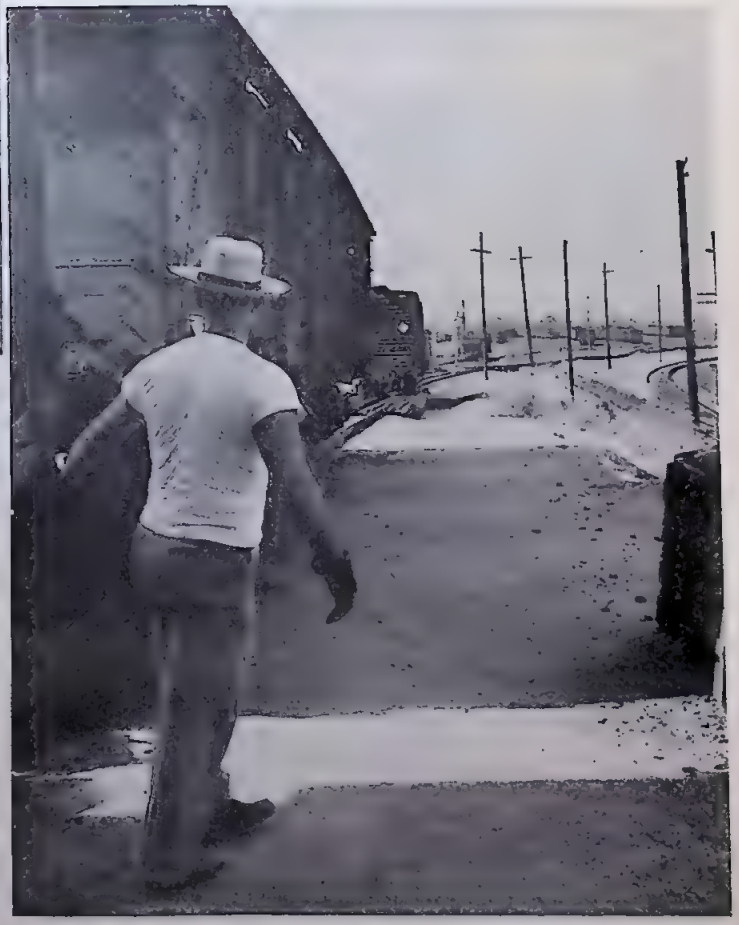
West of the station is a maze of switches and signals controlled from Seminary Street Tower ←. Tracks to left lead to Peoria and St. Louis; Ottumwa Division continues beneath signal bridge. A short distance farther the lead to Willis Yard (see following pages) branches off to the left as the Quincy-Kansas City-St. Joseph main line already has done. Train 52 for St. Louis originates in Minneapolis in the morning, makes all stops, leaves Galesburg at 10:15 p. m. →.

Freight Operations at Galesburg

Willis Yard was so named last July 10 in honor of its designer, R. W. Willis, who has been with the Burlington since 1899. The yard embraces 49 eastbound classification tracks, 35 westbound, besides 19 receiving, storage, and work tracks. Since 1942, when the westbound hump was built, this has been the largest classification yard in the world owned by a single railroad. The first hump, built in 1906, was manually operated until 1931, when the first retarders were installed. Under manual operation cars were humped 10 cuts at a time, each with a brakeman riding the cars. After bringing the cars to a stop the brakemen walked back to the standing train and another 10 cuts were processed. Now, with cars going through the retarders at an average of about five a minute, a 125-car train is classified in a half hour or less. Merchandise of all descriptions flows through the yard, ranging from bakery goods to coal from the mines in Beardstown, Wataga, and Fulton County areas in Illinois. One recent carload shipment consisted of a low-sided gondola containing one very large Christmas tree, destined for Peoria. In the photo ↑ a car (foreground) is negotiating the first retarder on the westbound hump while (far left) an eastbound train moves slowly over the eastbound hump. Car inspection is made before humping begins and oiling of journal boxes proceeds as the train moves past the oiling station a few hundred feet from the hump office. Lids of journal boxes requiring more packing are left open and waste is added as the cars stand on the classification tracks. The tie plant (smokestack, background) processes 4000 to 5000 ties a day, increasing life expectancy to 25 years. More than 1¼ million ties are on hand.

Courtesy CB&Q.

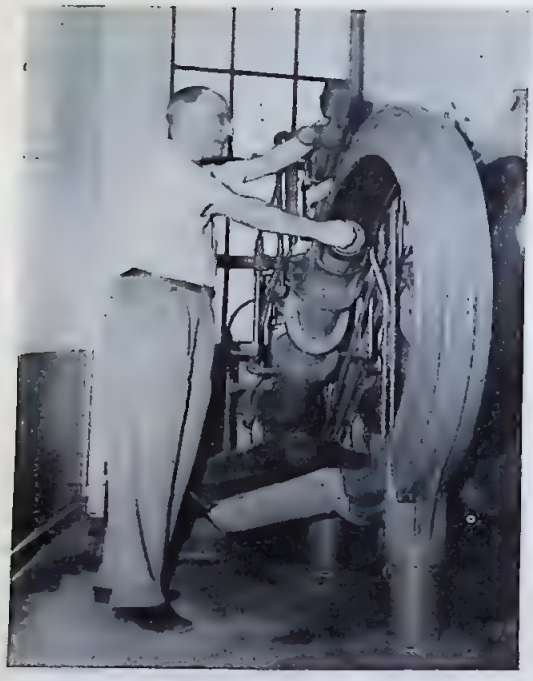
At the crest of the hump is the yardmaster's office past which all cars are pushed. Cars are checked off the train consist list which comes over a teletype printer. Similar sheets are also received by teletype in each of the controlling towers and in the trainmaster's office.



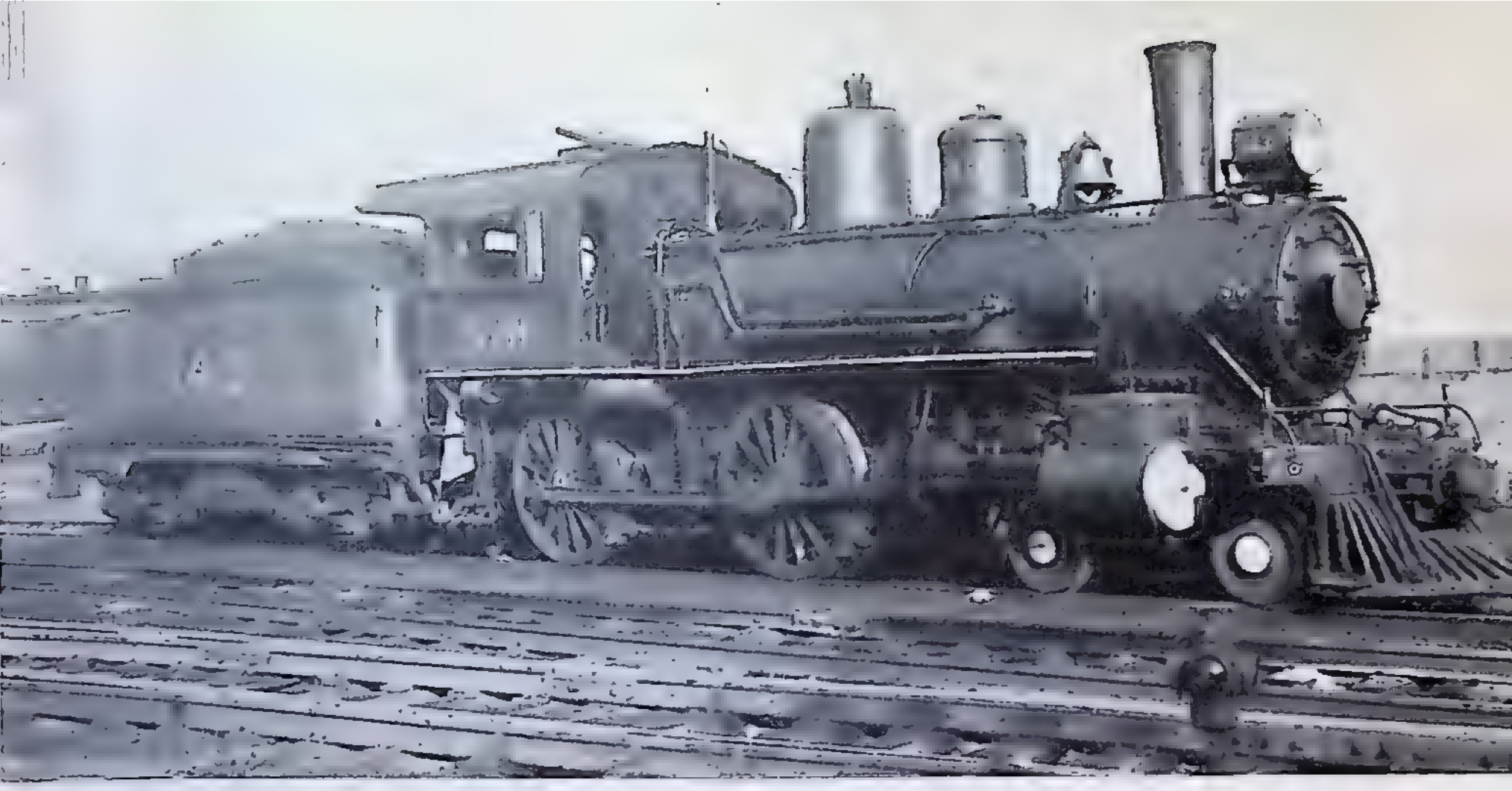
Cars are pushed over the hump at walking speed → and cut loose at top of slope. They rapidly pick up speed and widen the gap between themselves and the train. Before being switched to an adjoining track, speed is reduced to five miles per hour by means of pneumatic retarders which squeeze against the flanges of the wheels. Still drifting downgrade, speed is again increased and again reduced by retarders before negotiating another switch. Each car goes through three or more retarders before reaching its classification track, where it waits for other cars bound for the same destination. Although some classification is done at Clearing Yard in Chicago, Galesburg does most Chicago sorting.

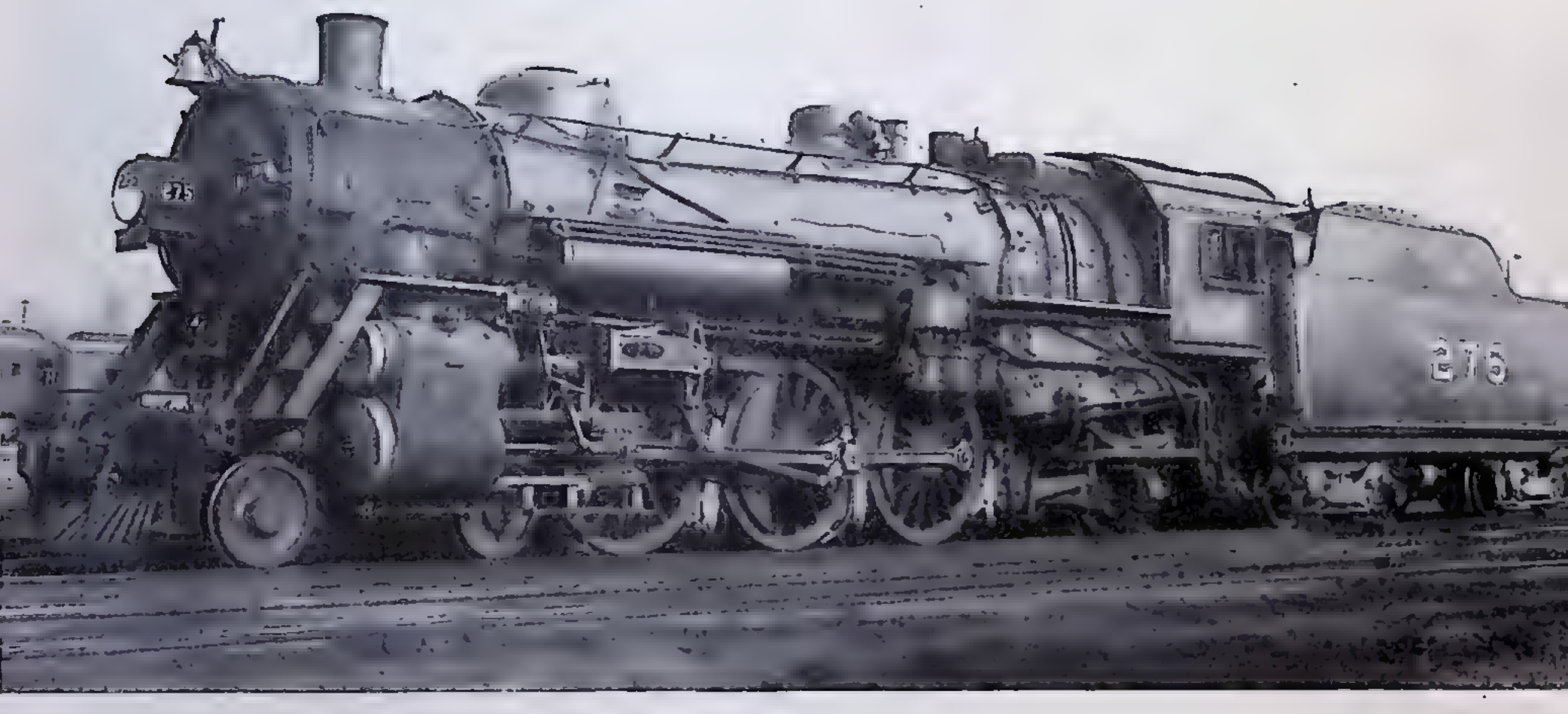
Signals above the hump office ← and at intervals of about 12 car lengths along the approach to the hump tell the engineer to hump slowly (yellow), to hump at medium speed (yellow-red), to hump fast (green), to stop (red) or to back up (red-red). A single switch on the signal control box ↙ changes the indication in a jiffy. Besides the visual signals, one-way radio is used to give oral orders to the engineers and towermen. Actual sorting

of the cars is done by operators in high towers ↙ who manipulate switch and retarder controls much as a model railroader manipulates the controls of his electrically-operated trains. Operator Jimmy Stout ↖ is operating track switch controls with both hands. Larger handles farther up on his desk operate the retarders. Directly in front of him is the consist sheet which he has marked to show what track each cut of cars ↓ is destined for. As the cars drop down the four per cent grade a flange greaser ↑ prepares the wheels for their trip through the retarders ↑, which have the ability to stop a car completely if the operator desires it. Usually cars leave the retarder at about five miles an hour and coast to an abrupt stop when they reach other cars standing on the same classification track. Cars carrying explosives are never humped but are switched under power to a gentle stop. During the war several hundred cars of explosives were power-switched daily at Galesburg. The use of Diesel switchers speeds operations in Willis Yard, due to flexibility, lack of smoke.



Speedy transportation of waybills from one section of the yard to another is accomplished by means of pneumatic tubes ↑, four of which terminate in the trainmaster's office ←. Consist of departing trains is sent by teletype ↓ to all points where the train will be processed further. Willis Yard then centers its attention on another train.

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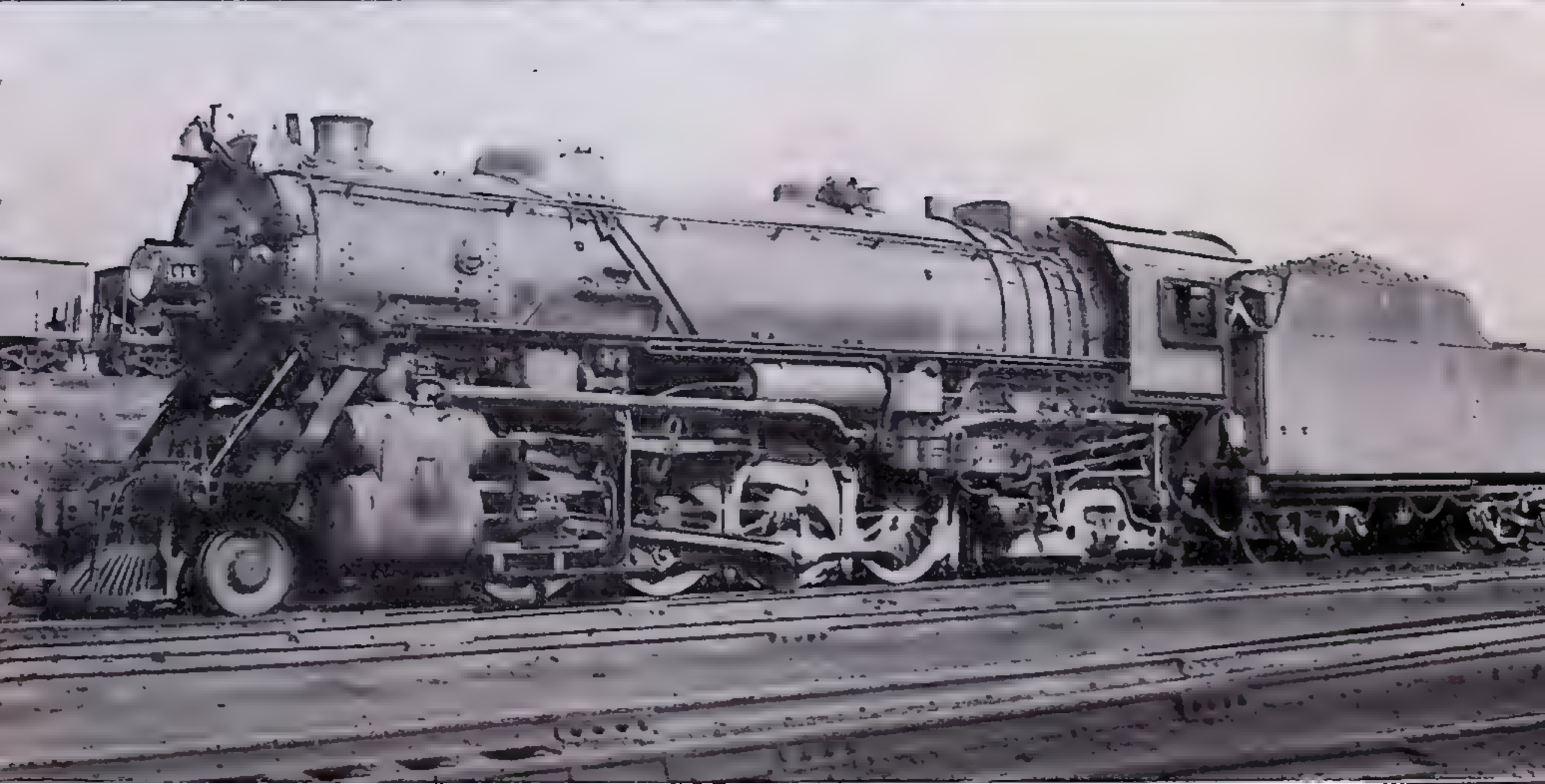


L&N American (4-4-0) Type

Class	Engine Number	Cylinder Dimensions (In.)	Driver Diameter (In.)	Boiler Pressure (Lbs.)	Weight Without Tender (Lbs.)	Tractive Force (Lbs.)	Builder and Date Built
D-21	143	18 x 24	64	160	112,650	16,500	Baldwin, 1889

L&N Pacific (4-6-2) Type

Class	Engine Number	Cylinder Dimensions (In.)	Driver Diameter (In.)	Boiler Pressure (Lbs.)	Weight Without Tender (Lbs.)	Tractive Force (Lbs.)	Builder and Date Built
K-5	275	25 x 28	73	200	277,000	40,700	Alco, 1924

L&N Mikado (2-8-2) Type

Class	Engine Number	Cylinder Dimensions (In.)	Driver Diameter (In.)	Boiler Pressure (Lbs.)	Weight Without Tender (Lbs.)	Tractive Force (Lbs.)	Builder and Date Built
J-4a	1903	27 x 32	63	200	340,000	66,150	Baldwin, 1929

Tractive force with booster, 74,844 pounds.

TRANSPORTATION *for the Midwest*

THE MINNEAPOLIS & ST. LOUIS RAILWAY

Serves the Great Midwest as a major Originating Carrier and operates also as an essential Bridge Line, moving transcontinental freight faster via Important Connecting Line Gateways.

To insure ever-better service for Connecting Roads and for Midwest Shippers and Receivers of Freight, the M. & St. L. ten years ago undertook a far-reaching program for improvement of equipment, tracks and structures.

The Statistical Record of Progress, at the close of 1946, shows that the M. & St. L. thus far has spent more than $25,000,000 on this modernization job. In the past five years alone, the M. & St. L. has added thirty-four New Diesel Locomotives, one of which is pictured above, and more than two thousand New Freight Cars, to its rolling stock. System-wide improvement of tracks has included complete rebuilding of the 500-mile main line, between Minneapolis and Peoria, with 100-pound rail, new ties and rock and gravel ballast.

The Minneapolis & St. Louis *Railway*

Fast, Dependable Freight Service in the Midwest

GENERAL OFFICES: NORTHWESTERN BANK BUILDING, MINNEAPOLIS 2, MINNESOTA

New Railroad Books

GRAND CENTRAL, by David Marshall. 276 pages, 6" x 9", illustrated and indexed. $3.50. Published by Whittlesey House, New York City.

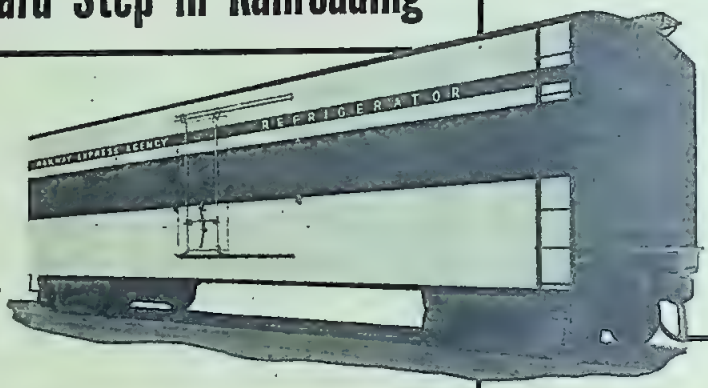
"Grand Central" is a well-executed word portrait of America's most famous railroad station, Grand Central Terminal, New York. To New Yorkers and indeed to many the world over, Grand Central is an institution. David Marshall explains why this is so, never directly but with telling force in his colorful, anecdotal, and pleasingly informal manner.

An amazing and seemingly incongruous assortment of facts, legends, and stories is skillfully woven together in the person of Ichabod, a schoolteacher with a flypaper memory who is, incidentally, a railfan of the first water. This gangling teacher takes us hither and yon in the vast station, talking, always talking, about anything which directly or indirectly has any bearing on the terminal. Facts, personalities, comedies, things great and things petty, Ichabod knows them all, tells them all, in this unusual book.

Through Ichabod the reader becomes acquainted with Jake the clockmaster on his rounds from the "Golden Clock" in the exact center of the station to "Big Fellow," which keeps time high up in the front of the building. Through Ichabod, too, we go with Redcap Ralston to the porter's regular gospel meeting of fellow workers, held three times a week in commuter cars spotted for the evening rush hours, before they are opened to the hurrying public. We meet the station organist, a talented lady who is forbidden to play the "Star Spangled Banner" because it causes a major traffic jam every time it is rendered. Others, such as towermen, station agents, dispatchers, ticket sellers, policemen, and gatemen help to make Grand Central as human as any station can be.

Between chapters of living personalities are sandwiched many pages dealing with the history and development of the present station. From the horse-car days of old Captain Cornelius Vanderbilt and the first Grand Central to the second station and finally to the terminal built in 1913, we get the complete drama of the New York Central's long struggle to cope with ever-increasing traffic on Manhattan Island. Men like William H.

A Great Forward Step in Railroading

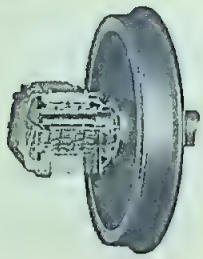


RAILWAY EXPRESS AGENCY SPECIFIES TIMKEN ROLLER BEARINGS FOR 500 NEW EXPRESS REFRIGERATOR CARS . . .

In announcing the ordering of these cars from American Car and Foundry Company, the Railway Express Agency stated in part:

> "The new cars are equipped with roller bearings, the trucks and brakes are full passenger car standard, which will permit placing them in the fastest streamlined passenger trains attaining speeds of 100 mph . . . Timken Roller Bearings will reduce the starting friction, locomotive fuel consumption and delays caused by journal maintenance."

The TIMKEN "QUAD" BEARING application will be used on these 500 cars. This type of application not only is used in new cars, but because it fits into existing narrow truck frame pedestal openings, it makes possible the conversion of existing friction bearing cars with pedestal type trucks to Timken Roller Bearings.



Timken "Quad" Bearing Application.

THE TIMKEN ROLLER BEARING COMPANY, CANTON 6, OHIO

Vanderbilt and Wilgus and Warren, who carried on the tradition of the "Commodore" in building up the railroad or the station or both, continually weave in and out of the story.

Apart from the station proper we learn that the Grand Central Terminal Restaurant & Oyster Bar has some 36 oyster men dealing out more than 25,000 of the bivalves a day. Indeed, the terminal is a merchandise mart in its own right, with 84 stores or stalls handling everything from books to shoeshines, clothing to haircuts.

We see the gray and red carpet unrolled for the *Century*, and we glimpse that famous train on Track 34. We follow the crowd to a "Yankee" (New Haven Railroad) commuter train or rush along behind Ichabod's coattails to see the *Empire State Express* pull out. And we see the station when the theater crowds come and go. In short, we see it all.

"Grand Central" is a really great book. — *F. D.*

THE MODERN WONDER BOOK OF TRAINS AND RAILROADING, by Norman Carlisle. 289 pages, 6¾" x 9¾". $2.50. Published by John C. Winston Co., Philadelphia, Pa.

The pageant of American railroading from its infancy to present-day development is told in story and anecdote. Beginning with straight history, the book later cites speed records, unusual runs, famous railroaders, and modern technical improvements in railed transport. The value of the iron horse in building the West and its role in 20th century America is dramatically told. A short chapter is devoted to model railroads and there is an admirable glossary of railroad slang. The book tends to be sketchy for adult readers but is just the thing for older boys.

HENRY MEIGGS, YANKEE PIZARRO, by Watt Stewart. 370 pages, 6¼" x 9¼". $4. Published by Duke University Press, Durham, N. C.

Much has been written about our enterprise in developing the United States frontier but little is published on Yankee entrepreneurs in other lands. This scholarly biography deals with a man from a New York village who went south to construct railroads first in Chile, then Peru. He gained wealth and prestige not unmixed with notoriety and censure. For all his faults, however, Henry Meiggs was a builder, as the construction of some 700 miles of railways attests.

The author presents Meiggs's life in an objective, well-documented manner as a social and economic study. For years stories about Meiggs (who died in 1877) have circulated, many of which are exaggerated and some almost legendary. Now for the first time we have an authentic account of the real Meiggs.

THE BROTHERHOOD OF SLEEPING CAR PORTERS, by Brailsford R. Brazeal. 258 pages, 8½" x 6", illustrated. $3. Harper & Brothers, New York.

Since the inception of the Pullman the sleeping car porter has been a familiar figure on American railroads. In this study Dr. Brazeal traces the growth of the strong and well-managed brotherhood and recounts its struggle in bettering working conditions of the Negro. The book in no small measure is the story of Philip Randolph, the able head of the sleeping car porter's union, and a well-known figure in race relations. It is well documented and is written with a nice sense of balance.

RAILROADING FROM THE REAR END, by S. Kip Farrington Jr. 409 pages, 72 extra pages photographs, $5. Published by Coward-McCann, Inc., New York.

The first chapter of this new book is the finest dramatic writing ever done about railroads, but the rest of the book does not live up to the promise. In a mixture of steam, hot cylinder oil and soft coal smoke Kip Farrington puts a fast freight in action between the covers of a book so successfully that the reader forgets words and sentences and all except the highballing action. But then he goes on with a miscellaneous collection of railroad facts, loosely organized, to fill out the rest of 35 chapters which seem to have no plan whatsoever.

Probably no one in the country lives closer to the railfans' dream existence. Kip Farrington is salt water editor of *Field and Stream*, but spends more time studying railroading than fishing. He is equally at ease with railroad presidents and the men on the road. He rides locomotive cabs or freight train cabooses as casually as most men might take the bus downtown.

Out of this active enthusiasm has come a great store of knowledge of modern railroading. The avowed intention was to tell in "Railroading From the Rear End" about railroad operations from war's end to date. The facts are here. They are adorned with excellent photos and many charts and tables. For a man who wants the information which can be found riding tens of thousands of miles of railroad and talking to the men who run it, the book can be interesting. But do not expect to find fact following fact in logical order, nor to be inspired by the writing. — *A. C. K.*

RUNNING EXTRA

Harry T. Reynolds is an assistant pressman, one of the men who makes TRAINS outstanding in the technical magazine field. The quality of presswork can either make or break a printed piece. A mediocre typographical layout plus good presswork will outshine a good layout which has not had the benefit of good presswork. TRAINS tries to combine the best in both.

Harry's job consists of much more than merely putting on a type form and adjusting the guides which steer the paper through the press. Packing on the impression cylinder which carries the paper must be adjusted so that the impression is neither too heavy nor too light. Type and cuts always vary slightly in height, and to compensate for this a "make-ready" sheet must be built up in varying thicknesses with tissue paper and inserted in the packing on the cylinder. Harry spends many hours in "make-ready" on each eight-page form.

He also has to make minute adjustments so that a page of solid text does not receive as much ink as a page which carries half tones or other heavy solids. Once these differentiating adjustments are made, still more adjustments are necessary so that the fountain delivers just enough ink to take care of each impression, neither building up an excess nor permitting an insufficiency.

Curse of all pressrooms is "offset," the smearing of ink from one freshly-printed sheet to the back of the next. TRAINS presses are equipped with spray guns to produce a mist which dries into powder as it strikes, thus separating the sheets and preventing offset. That's another adjustment Harry has to make, in addition to adjusting gas flames over which each sheet travels after being printed. These flames help not only to dry the ink but also to disperse static electricity, which raises havoc by preventing the smooth travel of the sheets through the press.

Harry's problems increase during the winter, for an even, not-too-dry heat is another essential to good presswork. To keep the relative humidity at the ideal 45 per cent, TRAINS has installed a number of humidifiers in its pressroom.

Railroad

Suggestion for Mr. Young

I read with interest a contributor's letter in a recent issue of TRAINS describing the beauty of the Clinchfield Railroad from Elkhorn City, Ky., to Spartanburg, S. C. The possibilities of that route have often captured my imagination. Picture the C&O's *Sportsman* bringing cars from Detroit and Cleveland and Chicago via Cincinnati and there making them up into a new train — why not the *Southern Sportsman?* This train could pull into Elkhorn City before daybreak and proceed over the Clinchfield. Crossing the Great Smoky Mountains in the late morning, it might well help open a new resort area in such localities as those engagingly tabled as Lost Cove, Green Mountain, Sprucepine, and Altapass. From Spartanburg the rails of the Charleston & West Carolina would take the train to Augusta and near-by Aiken and thence, late the same day, to Yemassee and Savannah, Ga., over the Atlantic Coast Line. From there one of the Coast Line's fleet could whisk through sleeping cars to a midmorning arrival at Palm Beach and Miami. What other train could offer so much to sportsmen and vacationists? Mr. Young of the C&O is given to suggesting little co-operative schemes to the railroads. Here is one for him to try with the Atlantic Coast Line, which seems to control the Clinchfield and Charleston & West Carolina. He would find the schedules work out equally well in the reverse direction. Louis B. McCallay, 228 S. Main St., Middletown, O.

"Don't Restrict Train Speeds"

Agitation is being made in Valparaiso that the city council pass an ordinance restricting the speed of trains to 20 miles per hour through the city, in an effort to cut down the number of train-auto collision fatalities. The Pennsylvania has six grade crossings here, and in the past 11 months four people have been killed despite the fact that all crossings are protected by warning devices. . . . Congress should pass a law that trains be allowed full speed over all protected crossings and that states, cities, villages, and hamlets can make no laws restricting the speed of trains. It should be the individual's responsibility to heed warnings placed there for his protection. James Burns, P. O. Box 483, Valparaiso, Ind.

Electric Headlights

My father, G. C. Pyle, was originator and inventor of the electric headlight for locomotives. He made the first, an arc light, in 1879 at Akron, O. Thomas Edison's father-in-law helped finance this venture. Edison himself at that time made the statement that no arc lamp would ever be made to work on a locomotive. He was almost right, as the task was a real one. The experimental work spread out over several years and nearly all was done on the locomotive while in service. For many years all electric headlights were arc lamps, and were clumsy and crude affairs. The old arc lamp was a spectacular thing and newspapers gave it plenty of space. Townspeople visited the depot to see the "searchlight" on the locomotive. Robert H. Pyle, Route 1, Plainfield, Ind.

Favors Shorter Freight Trains

Railroads have steadily increased the length of trains and the only result has been more cargo for the truck lines. Shorter, more frequent trains are the only answer to highway competition. J. W. Morgan, 262 Elm St., Kearny, N. J.

Mail

First Locomotive West of the Ohio

Although some authorities list the *Sandusky* as the first locomotive used west of the Ohio River, as you state in the caption on page 46, November TRAINS, my research in 1938 for a master's thesis on the Lake Shore & Michigan Southern Railway brought out that the Erie & Kalamazoo was in fact the first railroad in operation west of the Ohio, and that its locomotive *Adrian* went into service in July, 1837. The *Sandusky* of the Mad River & Lake Erie Railway did not arrive in Sandusky until December 2, 1837, almost six months after the *Adrian* had been delivered at Toledo. The E&K, oldest link in the Lake Shore & Michigan Southern, had an unusual car which was referred to as the "Gothic car." It had three compartments, each with a capacity of eight passengers. The roof was curved, and the windows and doors gave it somewhat of a medieval church aspect.

Adrian and Gothic car.

Paul F. Laning, 1109 Campbell St., Sandusky, O.

Vacationing on the Galloping Goose

Last summer I had the pleasure of riding with Jimmy Cooper, conductor, engineer, brakeman, switchman, mail clerk, expressman, and baggageman on one of the Rio Grande Southern's *Galloping Geese*. Mr. Cooper is a jolly fellow who points out interesting places with the stump of his forefinger, which is missing beyond the second joint. He says he wore it off pointing to the scenery. At Stoner Creek we stopped to unload mail and express, and while there Jimmy put a torpedo on the track beyond a trestle, an act that no one saw. Away we went, and then — *bang!* Jim got out and yelled "I've got a flat tire!" Anything for a laugh. He told me of one time when his air brakes failed him when he was riding alone. He put the Goose into low gear, cut the ignition and jumped. He walked 13 miles to Ridgway, looking for wreckage around the curves in the canyons, but to his surprise the Goose was standing at the station in Ridgway, right where he would have stopped it had he finished the run with the brakes working normally.

D. W. Church, P. O. Drawer 119, Houston 1, Tex.

Wants Exhibits of Old-Timers

Railroads apparently like to exhibit their latest Diesels and streamliners. I think many people would like to see an exhibition of old and obsolete railroad equipment — the kind that was in use 50 and 60 years ago. A railroad might display a streamliner alongside a train made up of an old 4-4-0 or 2-6-0 and a couple of open-platform wooden coaches.

James H. Davis, 13 Pearson St., Saugus, Mass.

Courtesy on the B&O

I read in the newspapers recently that the A. A. R. says conductors and dining car personnel should become more civil now that the war is ended. May I say that traveling on the Baltimore & Ohio Railroad is always a pleasure; in war and in peace it excells in courtesy.

John Carter, 176 Hicks St., Brooklyn 2, N. Y.

SECOND SECTION

Darwin Kenton is an English newspaperman assigned to write about the progress of United States railroads in the year 1960, the man whose travels Edward Hungerford chooses to follow in his book "A Railroad for Tomorrow," in which the fictitious William Wiggins is primarily responsible for the revision and consolidation of all United States railroads into "One Big Railroad." Kenton is treated to the inside workings of Wiggins' railroad empire as Mr. Hungerford skillfully traces a pattern for a railroad Utopia under the guiding genius of Mr. Wiggins, a new kind of hero of private enterprise.

* * *

Mr. Hungerford was aided in the production of this book by such eminent engineers and railway men as ex-President Herbert Hoover; Ralph Budd, president of the Burlington; J. B. Ennis, vice-president of the American Locomotive Company; and many others, all eminent in their profession. Although "A Railroad for Tomorrow" is not necessarily in full accord with all their opinions, they have been fruitful in idea and suggestion, and Mr. Hungerford acknowledges that William Wiggins is, in no small part, a creature of their imagination.

* * *

Mr. Hungerford's personal experience embraces 40 years of intensive study of the American railroad. His many books include such titles as "Men and Iron," "Daniel Willard Rides the Line," "Locomotives on Parade," "Transport for War," "The Story of the Baltimore & Ohio Railroad," and many others. He was director of the centenary exhibition of the Baltimore & Ohio Railroad in 1927, and of the famous New York World's Fair pageant, "Railroads on Parade."

* * *

Besides 323 pages of text, "A Railroad for Tomorrow" contains photographs and plans of today's modern trains, sketches of proposed new terminals, and maps and a timetable based on the year 1960. It is interesting to note that Mr. Hungerford's book proposed transcontinental train service before the inauguration of such service in the spring of 1946.

* * *

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Safety Valves

In the early days of steam railroading, the opening and closing pressures of the safety valve were the same, with the result that a valve in operation made a throbbing noise which was very disagreeable to the ears. This was because the instant the valve started to blow it would reduce the pressure enough to close the valve, and the instant it was closed the pressure would rise sufficiently to open it again. The process was repeated several times a second.

The trouble was cured by adding a small lip to the valve. Now when the valve is blowing the steam strikes against this lip, and the extra pressure which this produces against the valve holds it open until the internal pressure reduces somewhat. When the valve closes, the lip is cut off from all steam pressure by its contact with the seat of the valve, and the boiler pressure has to rise a reasonable amount before the valve opens again.

Steam gauges usually have a red mark to indicate the pressure at which the safety valve is designed to open, and any failure of the valve to blow at that pressure must immediately be reported by the engineer. — *G. W. O'Connor.*

626 Miles an Hour

(From the old Chicago *Inter-Ocean*, via the *Railroad Gazette* of December 11, 1896.)

Western roads have recently set up so many claims as to their ability to make fast runs and break the record, it is possible that the following story, told by an old engineer, of how he once broke all records and ran a freight at the rate of 626 miles an hour, may end the controversy for the time being. "Really, my son," said the engineer as he oiled the drivers of the huge locomotive he had just backed into the depot, "the fastest time I ever made was the fastest run ever made in this or any other country. I was hauling freight then and running an old Baldwin Mogul. We had started East with a train of 21 cars and four of them were loaded with powder. I was a little afraid of the powder and was pleased to note that the cars containing it were near the rear of the train. The top of the hill was just at the entrance to the tunnel and I shut off steam and eased her up a little after getting started down the hill. That was where I made my mistake, for 10 of the cars broke loose after the engine and first 11 cars had passed the summit and they came down after us 50 miles an hour. Just about the middle of the tunnel they struck us, and then it was that I made the fast run, for you see the powder exploded and my engine and all the cars that were left shot out of the tunnel like wads out of a gun. It was 4:03 when we entered the tunnel, and allowing a minute from that time till the explosion took place we ran the eight miles in just 46 seconds, according to my watch. Old 71 lost her side rods and connecting rods, and two of her tires, and had her smokestack carried off by the wind, but she was able to pull in on the side track, and just at that moment the operator received a telegram from O——, six miles on the other side of the tunnel, which read: 'Caboose of No. 64 and two smoking cars just flew by, leaving boards in the air, which are still falling. Rails are red-hot.'"

Dual-Purpose Inspection Car

The Evans Products Company, Detroit, manufactures a line of inspection cars and trucks known as "Auto-Railers" because they can travel with equal ease on highway or railroad. As a rail car, flanged steel pilot wheels serve as guides while the rubber tires carry about 50 per cent of the load. For highway use the pilot wheels are retracted by means of a hydraulic mechanism operated by controls near the steering wheel. The change from highway to rail use takes about 30 seconds; from rail to highway can be accomplished without a stop. Four models of the vehicle are made: inspection car, ¾-ton panel body truck, 1½-ton maintenance-of-way truck equipped with canopy body and seats for a 12-man crew, and a 1½-ton chassis with provision for installation of various types of maintenance-of-way equipment. The inspection car is claimed to be "as comfortable as a station wagon" and affords good visibility.

Subways Helped War Effort

London's subways played an important part in the recent war, not only in providing air raid shelters for its populace but in furnishing underground factory space as well. A section of the eastern extension of the Central Line between Leytonstone and Gants Hill, consisting of nearly five miles of single 12-foot diameter tube, provided about 300,000 square feet of factory space. The Plessey Company, Ltd., used the underground site as an aircraft-component factory. The three stations on the line — Wanstead, Redbridge and Gants Hill — were provided with equipment to handle raw material inwards and finished parts outwards, in addition to normal station escalators which facilitated movement of the factory workers. Intermediate entry points were also provided at two places so that no employee had to walk more than a quarter of a mile along the assembly line to his place of work in the tube.

Stop, Look, Listen

The famous "Stop, look, and listen" sign, known and recognized all over America, was invented in 1884 by a man named Thomas Gray. Gray worked in the car shops of the Southern Pacific; when his small nephew was killed at a railroad crossing in a rainstorm, he devised this sign to warn others of the presence of a railroad line, no matter what the weather. The simplicity of the sign made it easily recognized even by young children, both in wording and the design. The Southern Pacific adopted Gray's idea, made it official, and it soon was emulated by other roads all over the country.

It must be nice...

It must be nice to be a railroad with only one route. It simplifies the advertising problem. Southern Pacific has so many routes it's embarrassing.

For example, there's the Overland Route from Chicago to San Francisco (with some help from the North Western and Union Pacific). There's the Golden State Route from Chicago to Los Angeles (the Rock Island helps out on this one). And the Sunset Route from New Orleans to Los Angeles. And the Shasta Route from Portland to San Francisco. And the West Coast of Mexico Route from Tucson to Guadalajara.

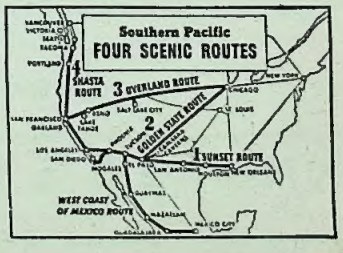
Getting tired? Heck, that's just the beginning.

From San Francisco to Los Angeles we have two routes—one down the coast and one through the San Joaquin Valley. Ditto from San Francisco to Portland—the Siskiyou Line and the Cascade Line.

What it all adds up to is such thorough coverage of the West that a traveler who comes out here on any other railroad should really have his or her head examined, it seems to us.

All you need to remember is that Southern Pacific is the only railroad with Four Scenic Routes to California, which are shown on the little map below. Go on one, return on another. See twice as much.

The little map shows where we go



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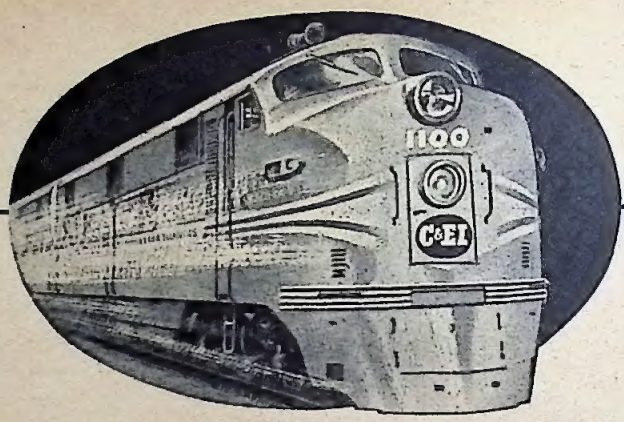

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D 11:02 pm	7:20 am	Ar. Birmingham	Lv.	9:05 pm	C 8:03 pm
D 12:56 am	10:10 am	Ar. Montgomery	Lv.	6:30 pm	C 6:11 pm
D 4:32 am	3:10 pm	Ar. Mobile	Lv.	1:00 pm	C 2:33 pm
D 5:51 am	4:54 pm	Ar. Biloxi	Lv.	11:13 am	C 1:14 pm
D 6:06 am	5:11 pm	Ar. Gulfport	Lv.	10:48 am	C 12:57 pm
6:10 am	2:45 pm	Ar. Pensacola	Lv.	1:30 pm	1:30 pm

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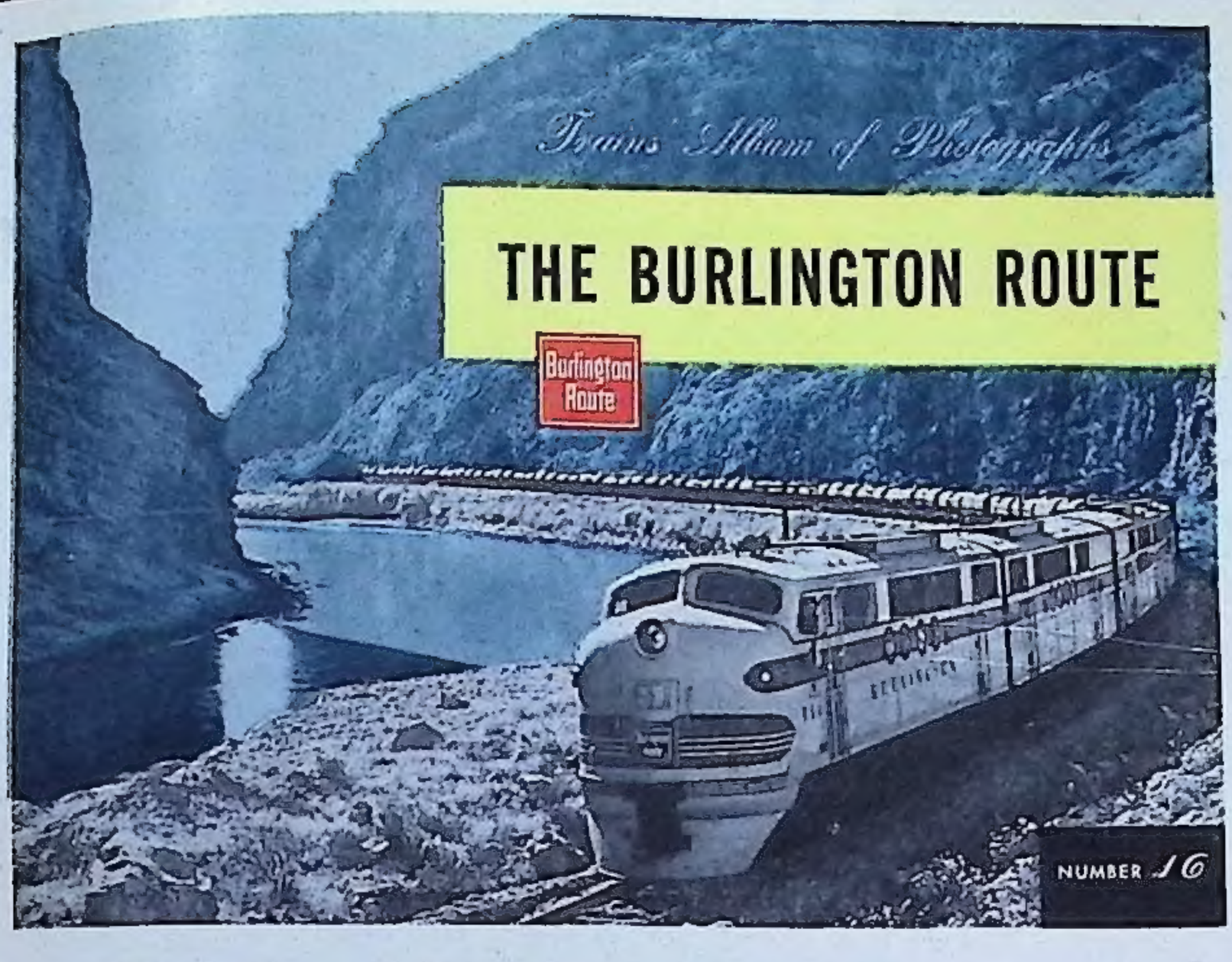
The Chicago Line



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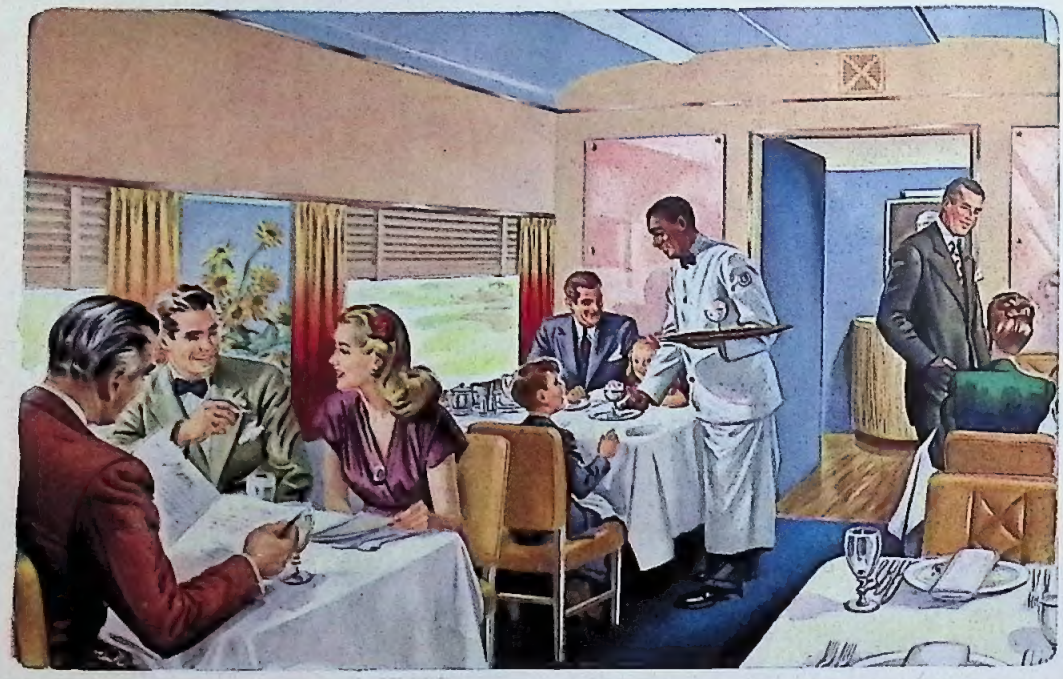

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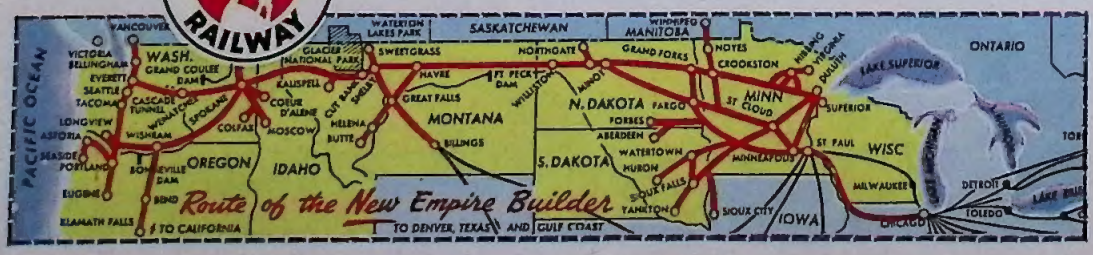
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